

NEWS IN BRIEF

No action on councillors' trip

NO action is to be taken against two Leeds City councillors who allegedly had a trip to South Africa last month paid for by ICL (CW, May 11). Following a meeting last week at which the two men were interviewed, a council statement commented: "With hindsight, all parties agree that it would have been preferable for arrangements for such a visit, which involved promotion of British computer technology, to have been made with the City Council."

Honeywell hit

DAMAGE estimated at between £500,000 and £1 million was caused to the Honeywell stores and warehousing centre at Segrate, near Milan over the weekend. The stores belong to Honeywell Spa, the controls division of the company, and the attack was part of a wave of bombing and arson which hit several Italian cities last week, following the discovery in Rome of the body of the murdered former premier, Aldo Moro.

Switching software

SOFTWARE has been introduced in the US by AT&T which allows the telephone company's Dimension private branch exchange to support the use of tie-lines between branch offices of a company. The software is called ETS for Electronic Tandem Switching, and was developed to beat off competition from private suppliers of tandem switching equipment.

Formula III sponsorship

A MAN who could soon be as well known as James Hunt or Niki Lauda is Rob Wilson, driver of the Formula III racing car sponsored jointly by Royal Grafton China and ICL. The 26-year-old New Zealand, pictured right, is currently lying sixth in the 82 Formula III championship and hopes to do well enough to move up to Formula II next year. Motor racing fans can see Wilson in action at Oulton Park, Cheshire, next Saturday, May 20, at Thruxton, Hampshire, on Monday, May 29, the Spring Bank Holiday; and at Brands Hatch on Sunday, June 11.

Wilson hopes to do a lot better at these events than he did at Monaco that weekend before last, where he failed to qualify for the Formula III race because his gears jammed during the practice round on the gearbox hammering Monaco circuit. Between races Wilson takes the car to ICL factories around the country. He says "This gives ICL employees a chance to look at their car and to talk to me and my mechanic about the sport. They are extremely enthusiastic. I also write a regular column in ICL News giving a report on how things are going."



Micros and jobs—Benn wants discussion

ENERGY Minister Tony Benn has called for a copy of the Earth Resources paper on the effect of microprocessors on employment (CW, May 11), so that it can be discussed at next month's meeting of the Home Policy Committee of the Labour Party National Executive. Benn is chairman of the committee. And a prediction by Barrie Sherman, research director of ASTMS, that there could be five million unemployed by the end of the decade, much of it caused by the development of information technology, is likely to have a major influence on the attitude of the Labour movement towards new technologies. Sherman's forecast is part of his input to the TUC study on the shape of the quality of life in the future, which is due to be ready for the annual congress later this year.

Racal adds high speed modems

A NEW family of high speed voice band modems operating at up to 9600 bps has been announced by Racal-Milgo. Based on microprocessors, the new family consists of four models, the 9620, 9601, 4820 and 4801. They offer a range of options including test and diagnostic facilities and the Fastnet rapid synchronisation feature for multi-drop networks. All available is the Dynaport device.

ICL invests £180,000 in SA non-Whites

A MAJOR commitment to non-White computer training has been made by ICL in South Africa. The local subsidiary is investing R300,000 (£180,000) in the training of Blacks, Coloured and Asians this year, and the first group completes the course at the end of the month.

From 1,200 applicants, 40 were chosen for training and were streamed into two groups. "They all had either high-grade matriculation passes or were university graduates," John Starkey, ICL South Africa managing director, told Computer Weekly. "and one is a medical doctor."

"Questions have been raised about the programme, because other computer companies have tried the same thing and failed, mainly because of poor selection at the start. But out of the 40, we know now that we will end up with 28 first-class trained people, mainly Coloured programmers, and there will be another 10 or so qualified people from the second stream, which finishes at the end of June."

"We have people from seven different non-White ethnic groups on the courses, and one of the pleasures has been to see the way people from different ethnic backgrounds have lived and worked harmoniously together."

TV sub-titles for the deaf system

A SYSTEM to provide sub-titles for all television programmes for the benefit of deaf people is being developed at Leicester Polytechnic. Using the BBC's Ceefax service, shorthand keyboards, and a Burroughs 8700 computer, stenographers could provide a continuous stream of sub-titles to be superimposed on the normal television picture.

Ceefax — and TV's Oracle — transmits textual information on unused lines at the top of the television picture, which can be decoded by special electronics in the receiving set and displayed as pages of characters in place of the picture. Ceefax already has a sub-title facility; this is one of the purposes for which Ceefax was originally invented. The problem that the researchers at Leicester are tackling is how to generate the text of the sub-titles.

Preparing sub-titles from scripts, as is done with foreign films, would be too time-consuming and expensive, so the proposal is to use trained typists who would listen to the television sound as it goes out and record it in Palantype shorthand keyboards, such as are used by court stenographers. These are special keyboards that are an alternative to manual shorthand. The typist records the speech in a special abbreviated phonetic code.

The translation is normally done manually, but to make captions in real time, a computer system is being devised at Leicester to do the conversion by a process of dictionary look-up, and send the resultant English text to the Ceefax encoder to be broadcast.

Burroughs terminals range

THE new range of modular banking terminals from Burroughs, revealed exclusively (CW, November 11, 1977), has now been announced. Items from the line are included in the £10 million of terminals on order for the Altrincham Group of Trustee Savings Banks (CW, April 27). The new building blocks for the banking market include keyboard display units, printers and microprocessor-based concentrators, and represent a response to European companies like Philips and Datacube which pioneered the modular approach to the banking market and have made inroads in the US.

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Briefing The Othello challenge

REAL time systems consultants Zeus-Hermes, in conjunction with Computer Weekly, are running an Othello board game competition in London on July 7 at Zeus-Hermes headquarters, Shropshire House, 2/10 Copper Street, London WC1, starting at 7pm.

Places for the competition are strictly limited and are by invitation only, with priority given to players who represent their DP unit. Applications for entry will be considered only on an official entry form, which contains full rules and details. Players, who can bring one guest, will be selected on the basis of completed applications.

So hurry to get your form from Maureen Chapman, at the Zeus-Hermes address above or telephone 01-323 0637.

Level 6 expanded

TWO models have been added to Honeywell's Level 6 minicomputer range. Due to be announced today (Thursday), they are expected to bracket the existing machines in the line. Honeywell has also formally announced the CP-6 operating system which is designed to enable users of the Xerox CP-V operating system on Sigma machines to migrate to Level 66.

IBM X25 interface

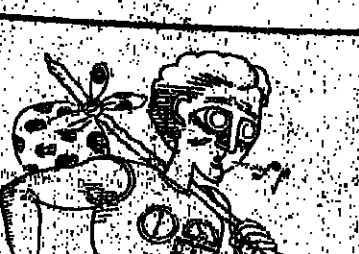
AN INTERFACE and a software package which allows the Series 1 minicomputer to connect to X25 packet-switched networks has been announced by IBM. It is available on a request price quotation basis only, and is at present limited to Canada and France where X25 networks are being built. It will allow exchange of data with any other network user who can handle HDLC data frames.

DAP for atom men?

THE UK Atomic Energy Authority are likely to obtain the ICL Distributed Array Processor within a few years to join a £4 million 2880 at Risley, which was officially inaugurated last week. The DAP could provide additional power to the 2880 to run its workload as well as being used for special applications. See page 5 The Risley 2880.

Out night work, call

A MOTION for the abolition of "non-essential" nightwork was carried by the Post Office Group of the Society of Civil and Public Servants at the union's annual conference. A spokesman for the group said: "This applies to what we call 'office work computing', such as the payroll and billing."



Dr Leslie Underhill, head of Central Computer Services Northern Division of the UKAEA, guides Energy Minister Tony Benn through the operation of one of the consoles at Risley. Looking on is John Evans MP for Newton.

Benn's warning on impact of technology

ENERGY MINISTER Tony Benn has called for a company-by-company examination of the impact of computers and related technologies on jobs in order to prevent technology "cutting like a scythe through employment."

Speaking last week at the opening of an ICL 2880 installation at the UK Atomic Energy Authority at Risley, Lancs (see page 5), Benn said that the impact of computers on society is likely to be "absolutely phenomenal," changing the nature of life in a deeper way than other modern technologies.

He stressed that he believed that the public acceptability of the new technologies would be vital in determining the rate of their implementation. He feared that, if handled wrongly, it could lead to "very difficult political times in the 1980s."

This is likely to happen, he said, because the technological developments are taking place at a time when there was also a world wide recession in manufacturing industries. It would, he believed, lead inevitably to an increase in the demand for public services, such as education and social services, to cope with the people made unemployed.

ALTHOUGH the triumphantly returning Hexadecim Kid is not all human, the rest of Computer Weekly gives priority to flesh and blood. Joining Tony Benn (this page) in the great debate on the impact of information technology on employment is Derek Grover, who argues for a basic national wage for everyone as a way of making maximum use of the country's human and machine resources (page 4). Chief programmer team is the Program-

Govt gets tough on standards

Manufacturers have been informed by the Computer Board that from January, 1979, the availability of internationally agreed networking standards will be an important factor considered by the board in awarding university and research establishment computer contracts. From the end of 1980, adherence to such standards is likely to be obligatory.

These standards will include X-25 and high level protocol standards which are still being developed by standards organisations. A file transfer protocol is likely to be one of the standards included in the board's requirements.

The board's action emphasises the growing impetus towards tying public procurement policies to the provision of standards. The EEC has a working party examining this issue (CW, May 11), and the US government is likely to stiffen existing standards requirements following a recent report by its auditing authority that government installations were wasting hundreds of millions of dollars through the lack of standardisation.

And Prices Secretary Roy Hattersley told a conference on Standards and the Industrial Strategy last week, that the government is placing high priority on relating public procurement to standards, and is encouraging local authorities to do the same.

In its letter to manufacturers, the Computer Board warned that from January, 1979, tenders would be judged partly according to how well they meet networking standards. Networking will be one of the main features of university computers in the next decade. The board's Network Unit, headed by Mervyn Williams at Rutherford Laboratory, is placing particular emphasis on packet switching and standards. In its plans for rationalising development of these networks.

They called for the rapid introduction of legislation for the international protection of personal privacy with regard to computers.

By Rory Johnston

In addition to X25, the Computer Board is interested in establishing high-level protocols, particularly file transfer protocols which would enable whole files to be moved from one computer to another in a different make without difficulty. The board also regards the ability to transfer jobs as being highly desirable, but more difficult to achieve.

Several committees, including the British Standards Institution and International Standards Organisation are working on a number of high level protocol standards and when they are agreed, the Computer Board will include them in its requirements.

In particular, a standard specification for a "transport service," which will handle the interface between X25 and high-level protocols, is expected to emerge this year.

Of the manufacturers which have so far replied to the board's letter, most have been non-committal as to their ability to meet these standards, saying they required more investigation by their technical staff. Some said that they would be able to meet the requirements by the date.

Graham and Christine, the South West's Computastars

FOUR DP departments in the south west now have Computastars in their midst following last Sunday's regional heat, held in Bristol, of the nationwide DP sports event, Runo year.

The men's team from the Rank Organisation in Plymouth and one of the women's teams from Burnham Oil in Swindon, won the team events. The two "lonely people" who were the individual contestants were programme Grahame Jenkins, of the CM & G Insurance group in Bristol, and Christine Charley of Rank Xerox in Mitcheldeens, Gloucestershire.

Eleven men's and five women's teams took part in the events which ranged from cricket, billiards, and waffle boot throwing to a gruelling staircase at the end of the day.

See page 10 for more Computastars.

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Burroughs terminals range. THE new range of modular banking terminals from Burroughs, revealed exclusively (CW, November 11, 1977), has now been announced. Items from the line are included in the £10 million of terminals on order for the Altrincham Group of Trustee Savings Banks (CW, April 27). The new building blocks for the banking market include keyboard display units, printers and microprocessor-based concentrators, and represent a response to European companies like Philips and Datacube which pioneered the modular approach to the banking market and have made inroads in the US. £100,000 order. THE dual Argus 500 computer system installed by Farrant Ltd in the Dyce Operations Centre of the BP Forth oilfield in 1978, is to be upgraded in a £100,000 order received by the company.

RAIR DECPRINTER I 180 c.p.s. Serial Printer. 132 column printing on 6-part forms. Field-proven 7 x 7 dpi matrix print-head. 11-position forms length switch. Paper out alarm. Parallel or buffered GCITT-V24 interfaces. Prices from £1500. United Kingdom: RAIR Ltd, 100-102, Strand, London WC2R 0PH. Telephone: 01-836 3463.

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Call for legal data exchange. POLITICIANS from the 20 member states of the Council of Europe have called for an increased use of computers in parliamentary work to improve democratic control of the executive. At a meeting in Strasbourg last week, they proposed arrangements for exchanging computerised legislative information between parliamentary assemblies. The politicians would like all legislators to have online access to data on the work of the other European parliaments, as well as statistical information gathered from a range of European databases. They called for the rapid introduction of legislation for the international protection of personal privacy with regard to computers.

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DOWNTIME

by Chad

For lost lovers

WHO says computers don't bring happiness into people's lives? As a promotion gimmick for a new film called "If Ever I See You Again," a Pertec mini system is being used to provide a re-uniting service for lost lovers all over the US.

For two months after the film opens, phones will be manned at Pertec's headquarters (just down the road from Hollywood) to take calls from people looking for someone they have lost touch with. All the info will be fed into the computer, and when and if the other party phones up, they will be put in touch and — awww!

The film, apparently, is a soppy romance, so all this has

some relevance. Pertec points out that an individual "can only be reached by the person he or she is trying to communicate with — thus, individual privacy is built into the system."

There will be a terminal at the NCC at Anaheim next month, so if any of you had lightning romances on previous trips to the States, here's your chance!

● In German terms, computers are feminine, and a five-year-old machine is decrepit — and that's official. Writing about the improvements to ICL's 2903 series, the German weekly Computerwoche headlined its story "Facelifting für eine alte Dame" (facelift for an old lady).

Cookery corner

COMPUTER people are, of course, noted for their 'high living', but understanding for their needs does not seem to have reached Barnsley, where a new council computer centre was opened with some ceremony recently.

A Ratepayer candidate com-

ment is that our engineers getting bored. Our 470 systems invariably have an up-time of 88.5% and we are now thinking of having programmers do the maintenance, assisted by our Amodec diagnostic system which links every Amdahl 470 by satellite to Sunnyvale. — Dr Gene Amdahl, quoted in the French paper Ordinateurs.

plained bitterly that the buffet lunch served on this occasion was "a disgusting waste of money."

The menu consisted of decorated boars' heads, two large salmon, four hams and tongues, sliced meats and salads, with pork pies, cheese and biscuits, Black Forest cherry cake, coffee, beer and spirits.

Apart from the fact that decorated boars' heads are not, in fact, edible, I'm sure you will agree that in these stringent times Barnsley Council should have shown more constraint.

I mean, really, pork pies, cheese and biscuits — how decadent can you get?

Introducing realistic accounting for future employment

By Derrick Grover

FEW issues have raised so much concerted interest from people in different spheres as the unemployment that is anticipated from the escalation in the use of computers — especially when microprocessors become so cheap as to affect every walk of life and mode of employment.

Mike Cooley of AUEW/Tass in his address to the Datafair 77 conference referred to the problems of extensive unemployment especially if it reaches a level where the economy can no longer support subsistence payments. He envisaged that such a situation will occur because companies tend to make work processes capital intensive rather than labour intensive.

Barrie Sherman, research director of ASTMS (Futureview, CW, February 23), speaks of the impact that microprocessors will have both on future employment and the types of employment available. He postulates various possible actions and in particular draws attention to the danger of taxing multinational companies unfairly since this will cause them to invest elsewhere.

I have postulated in a letter published last year, that the problem could be alleviated by the use of realistic accounting when considering the State subsidy paid to unemployed people.

Let us first make the assumption that unemployed people will be paid a subsistence allowance sufficient for them to survive with a measure of dignity. We are then faced with the reality that the saving resulting from making a person unemployed is not the salary and overheads at present borne by the employer but the difference between these and the unemployment subsistence allowance.

Industry, as the producer of wealth, ultimately pays for the unemployment subsistence and this fact should be recognised in the accounting procedures when assessing the merits of labour versus capital equipment.

Industry, as the producer of wealth, ultimately pays for the unemployment subsistence and this fact should be recognised in accounting procedures.

John Harris and I (Letters, March 16) have postulated the realistic accounting that would arise if everyone were paid a basic national wage with the employer supplementing this by a smaller salary such that the employed individual receives a total payment similar to the present. On average the employer's expenditure would be the same since higher taxes would pay the basic national wage allowance.

It would not then be beneficial to replace people with capital equipment until the equipment realised greater savings. It would not stop the progress to be expected from investing in more efficient techniques; it would simply delay these investments until they were economically feasible when taking account of the realistic costs of making people unemployed. Accordingly, unemployment with its effects on morale would be less and greater mobility of employment would be likely since the incremental cost to a company of increasing its staff would be lower. In this respect the system would be preferable to redundancy payments.

The minimum salary paid by the employer would necessarily cover the extra costs of working such as fares and meal plus an incentive factor. Any scheme will have some disadvantages and in this one it is possible that if cheap labour is available to an employer then he will underrate its value and employ accordingly. The employee nevertheless has the option of seeking more fulfilling employment elsewhere, bearing in mind that other employers are more likely to take on staff due to the smaller incremental cost of employing people.

Harris suggests that if people are paid a basic national wage then they are not working then they are likely to be more time lost through absenteeism and to these problems must presumably be incentives for people to behave as a good employee and if it is necessary for an employer to pay a higher salary

Joining the great debate on the effect of computers on jobs is an executive responsible for licensing and funding of work associated with DP. He argues that a basic national wage for all would control the distribution of a portion of the national wealth and would ensure that society maximises the utilisation of those resources in human beings and capital equipment.

for good performance then this is indeed the cost of employing labour which must go into the cost equations of employment. The stabilising effect of national market forces is necessary to optimise the economy and it becomes more acceptable to use a free market philosophy if the hardship that has occurred to previous generations.

Harris raises the objection that "if labour is comparatively cheap then the employer may not invest in the latest equipment which could be detrimental to the national long-term interest." The date at which an employer invests in superior equipment should be dictated by the interest to the company, since if it is in the company's interest then the national interest, being that of a collection of companies, also benefits.

Investment in new equipment will not, of course, be determined by the short-term view but will depend upon benefits both in the present and in the future, bearing in mind the need to gain experience of new techniques to be competitive — especially against overseas companies.

It is the job of management to draw up this equation so that the long-term investment in equipment marries with the short-term interest in a manner which is of most benefit to the company.

Opinions on how to equate the short- and long-term interests will no doubt differ. The realistic assessment of the opportunity time for investment will not be endangered by introducing marginal costing for labour, provided the marginal costing is itself realistic and not disguised by hidden subsidies.

A difficulty in the scheme arises, as Sherman has pointed out, if a multinational company is taxed excessively. This situation might arise if a capital intensive company were taxed to the extent of subsidising a labour intensive company which was benefiting by the marginal costing when paying salaries. The "negative income tax" system referred to by C. G. Breiner (Letters, April 27) achieves this purpose. The VAT style scheme suggested by G. R. Beacon (Letters, April 6) sounds a possible method of taxation; at any rate it may need to be a tax aimed at the consumer rather than the employer.

It would be beneficial to replace people with capital equipment until the equipment realised greater savings.

Beacon raises the interesting question of the effect of subsidising employment on imports and exports. A subsidy on exports cannot be in the national interest other than to establish a long-term advantage by nursing an industry until it is efficient and profitable. The subsidy in the case is really playing the role of supplying the adequate capital investment necessary in

the first place in order to control the industry through an initial growth phase to a mature position where it becomes self-supporting. Subsidising the industry is simply a way of disguising the true needs of the industry and this will introduce the dangers of unrealistic accounting.

Some recent correspondence has tended to equate subsidy with a basic national wage. It is important to distinguish between a subsidy, which is a pecuniary aid aimed at selected recipients in order to alter the natural market discipline, and a basic national wage which performs the role of "underpinning" the employment system, provide a foundation on which to build. In the latter case a free market discipline continues to apply in order to judge products and services the consumer really wants.

It is interesting to compare the performance of a company using the concept of a basic national wage, BNM, with that of a sister country which operates in the conventional mode of paying a separate employment subsistence to redundant employees.

Let us suppose for simplicity that the countries are similar in respect of resources and capabilities, and then compare their performance in the future when microprocessor systems and other capital equipment have made an extensive intrusion into the job market.

The sister country has the burden of paying subsistence to large numbers of unemployed who make no contribution to the economy. The BNM country has fewer unemployed because realistic accounting with marginal costing justifies the employment of larger numbers of people to contribute to the economy in place of a proportion of capital equipment which does not in this system exceed the threshold at which it becomes economic to install. Economic human resources which would otherwise be unused, are available to produce wealth. The BNM country benefits from a higher standard of living with a surplus to pay extra imports.

It is perhaps either over-ambitious or foolish to suppose that we can effectively control a system as complex as a national economy better than the naturally occurring forces of a free market. In the event that we wish to safeguard the population from the dangers of those safeguards should be simple and capable of being implemented without damaging the free market forces. The introduction of controls and subsidies has the effect of distorting reality and, although this may confuse the critics, it is a disadvantage of the country as a whole.

A basic national wage for all would control the distribution of a portion of the national wealth. The remainder could be subjected to the discipline of a free market which, coupled with realistic accounting, would maximise the utilisation of those resources in human beings and capital equipment.



Tom Reid

Insac's US plans for viewdata

PREPARING for the New York launch of the Post Office's Prestel viewdata system, Insac Data Systems has appointed Tom Reid to the post of Operations Director. He joins Insac from ICL Datasil where he headed the Advanced Application Section.

His responsibilities at Insac will include product development, liaison between member organisations and the Insac international software marketing companies.

Government computers

UNDER a new procedure for the procurement of government computer systems costing up to £150,000, announcements will appear for time to time in Computer Weekly, giving brief details of equipment required. Prospective suppliers can then write to the Central Computer Agency for full details.

They will receive a "Summary of Operational Requirements" a new standard format, produced by the user department. The specifications in this will be classified as "mandatory" or "optional" and to be considered, a supplier will have to be able to satisfy all the mandatory requirements.

Having seen the BOR, firms will submit outline proposals to the CCA and a short list of these will be drawn up, to be followed by detailed discussions. Two notices have so far appeared under this procedure, one for a key-tape system for the Department of Trade at St Mary Cray, and the other for a multiplex system for two ICL 1904S machines at the Ministry of Agriculture, Guildford. There is also a requirement for a front end processor for these machines.

Advanced modems from Racal-Milgo

A RANGE of microprocessor-based, voice band modems designed to provide flexible network operations and easy maintenance, have been announced by Racal-Milgo (CW, May 18).

Developed by Racal-Milgo in the US, the MPS series consists of four models, the 9828, the 9801, the 4828 and the 4801. Operating at 9,600 or 4,800 bps, they are compatible with CCITT V28 and Racal-Milgo's earlier modems.

The market in Europe, Africa and the Middle East for modems, other than for PTTs, is estimated to be worth about \$80 million, and Peter Hare, Racal's director of product planning, commented, "We would not be embarrassed to get the whole market."

Post Office approval has been applied for, and the company hopes to have it in time for the start of deliveries in July. The modems incorporate a key option called Fastnet, a line

VME/B meets UKAEA approval

CONFIRMATION that the 2800 series VME/B operating system is now making good progress after significant problems in earlier releases of the system, has come from Dr Les Underhill, who is responsible for the £4 million ICL 2800 at the Northern Division headquarters in Risley, Lancashire, of the UK Atomic Energy Authority.

Speaking last week before the inauguration of the system by Energy Minister Tony Benn, Dr Underhill pointed out that the initial problems with the 2800 "have mainly been concerned with the VME/B software."

"While the overall specification of this software is very good, perhaps the best in the world, its early release gave rise to some dissatisfaction," he commented.

As proof that, for the UKAEA at least, these initial problems are being solved, Dr Underhill quoted benchmarks figures which display a considerable improvement in performance in the latter half of last year (see Figure 1).

The target for the benchmarks, which passed performance tests in December and reliability trials in February this year (CW, May 4) was to ensure that the 2800 could handle throughput six times more quickly than the ICL System 4/72, which it is to replace.

At present, the Risley 2800 is handling about 2,500 jobs a week, running about 12 hours a day with 30 online terminals and eight Remote Job Entry streams, but the workload is likely to more than double by the end of the year.

Dr Underhill stressed two areas of VME/B with which the Authority is still dissatisfied — the reliability of the communications system and better interfaces to the scheduling system to enable the UKAEA to incorporate its own automatic scheduling systems, originally developed for the System 4/72.

Both these requirements are important to the UKAEA, as the Risley 2800 has links to six AEA and British Nuclear Fuels establishments at Windscale, Dounreay, Springfields, Capenhurst, Culcheth and Risley, with more sites to be included.

Windscale, which currently has an IBM 370/145, is connected to Risley via a remote ICL Communications Network Processor at Windscale using the HDLC protocol which is one of the international communications standards with

which ICL's network plans must remain compatible.

ICL accepts Dr Underhill's criticisms as valid. A company spokesman said that steps were being taken to improve the communications handling facilities and the scheduling interfaces but would give no commitment to dates by which the problems will be resolved.

It is understood, however, that with release 3X32 of VME/B,

which is expected to be available early next year, much of the criticism levelled against the VME/B communications capabilities are expected to be answered.

The UKAEA network requirement is particularly complex, as it has to cope with a wide range of different tasks, from large-scale scientific and technical calculations to commercial accounting and administrative activities.

	August 31, 1977	December 12, 1977	Target
Batch Elapsed time	74 mins	46 mins	67 min
Processor time	61 min	43 mins	47 mins
MAC-dilation 50 terminals	4%	4%	20%
MAC + Batch Batch elapsed MAC dilation	101 mins 35%	66 mins 17%	77 min 30%

Figure 1: Risley 2800 performance benchmarks compared to targets aimed at proving the 2800 is six times more powerful than a System 4/72. Note: MAC dilation is the increase in time running a program from an on-line terminal in a multi-access environment compared with the time of stand-alone running of the program

Overall drop in equipment sales

A MARKED drop in overall sales and exports by the UK computer equipment industry between the third and fourth quarters of last year is shown in the latest Department of Industry figures from the Business Statistics Office.

Mainframe sales fell from £57 million to £47 million between the two quarters, peripheral sales slumped from about £120 million to around £95 million and overall sales came down from £206 million to £171 million. This made them only marginally better than the £163 million figure chalked up in the fourth quarter of 1976.

Word processor from GCS

A NEW shared-logic word processor using intelligent terminals has been announced by General Computer Systems. Called the Datatext IV, the system uses a specially-designed VDU 96 characters wide that can be switched between 10 and 12 characters to the inch, and contains its own memory and microprocessor, a Zilog Z-80.

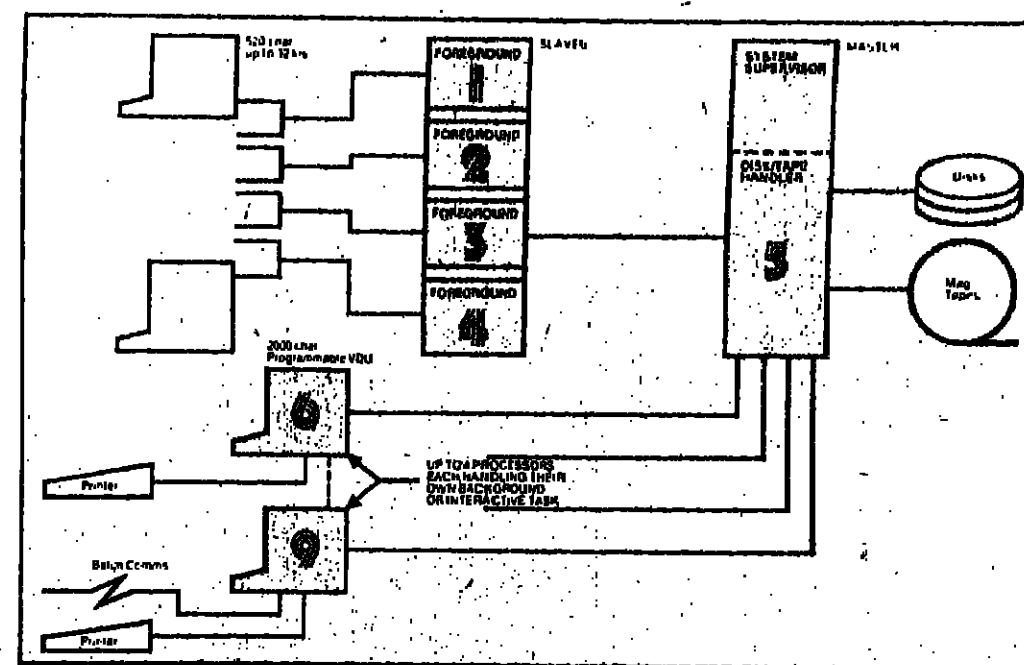
Exports on mainframes fell dramatically from £29 million to less than £18 million between the two quarters and were actually lower than mainframe exports in the fourth quarter of 1976 which were about £20m.

Peripheral sales at £45 million, were also well down on the previous quarter and marginally lower than the year before.

In contrast to all this, total imports of computer equipment fell only slightly between the third and fourth quarters of 1977, from £182 million to £180 million, and imports of mainframes actually rose slightly, from £20 million to £21 million.



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Keen competition in the North East

A GREY, rainy morning gave way to a brighter afternoon as the North-East heats of Computastars, held at the Nab Wood Sports Centre, Bingley, Yorks last week turned out a great success.

The nineteen men's teams, each of five members, braved the elements of the morning to entertain the spectators adventurously enough to join them in the open, and the more cautious who watched from the relative comfort of the marquee.

Competitors took part in five events: penalty kicking, putting the shot, projecting a frisbee, performing press-ups, and stand-ups, and sprinting.

At around 2.00 pm, the finalists emerged as PMSL 1, Rowntree Mackintosh 1, Rowntree Mackintosh 2, the 600 Group, Platt Saco Lowell, Bonta, Reckitt & Coleman 1 and British Railways. The non-qualifiers took part in a men's plate competition.

The ladies joined in the fun at about 2.15 pm, with seven teams participating. In Computastars, the ladies' teams have three members and two reserves, if so desired.

They took part in events including netball, throwing the cricket ball, sprinting and sack racing. The cricket ball throwing was great fun but pretty hazardous, as when Debbie Simpson, of Woolworth, using a curious under-arm technique somehow managed to throw the ball behind her, scattering the spectators.

Anyway, everyone survived, and at around 5.30 pm Woolworth clinched the ladies' team title, with the individual award going to Sheila Watson of Midland Bank Sheffield.

The men's competition went on and on into the evening, until just before 9.00 pm, when

Rowntree Mackintosh 1 won the contest, with the individual title also going to their number one seed, Martin Rigby.

So, the qualifiers for the final to be held in London sometime during September are, from the men's competition: Rowntree Mackintosh 1, runners-up Platt Saco Lowell, PMSL, and Midland Bank Head Office, as winners of the Plate competition. The qualifiers from the ladies' competition are: Woolworth, Midland Bank Sheffield and PMSL 1.

For the uninitiated, Computastars is a nationwide competition organised by John Goldsmith Services and supported by Computer Weekly, and is intended to test the all-round sporting ability of computer staff. Each men's team has five seeded members, and each ladies' team has three.

"The show must go on." Two lads defy the adverse conditions and impress the spectators with their strength and endurance by performing some press-ups.



Is this the latest in ladies' fashion? No, it's Sheila Watson (left) of Midland Bank, Sheffield springing her way to victory in the sack race and the ladies' individual title.



The sweet smile of a winner from the girls of Woolworth, winners of the ladies' team title. From left to right: Jean Barlow, Debbie Simpson, Kathryn Colquhoun and Linda Kewley.

PEOPLE

Board appointments at Racal Datacoms

THE recently formed Racal Data Communications Group (RDCG, May 11) has made two more appointments to its board.

Barry Stutard, already a director of Racal-Milgo Limited since it was formed in 1969 when he came from STC Data Systems, is now appointed technical director of the new company. Stutard is a member of several CITT study groups and is this year's chairman of the Data Systems Division of the Electrical Engineering Association.

Peter Hare moved from RCI, in 1975 to be marketing manager of Racal-Milgo with particular responsibility for selection of products complying with CITT requirements. He is now appointed director of product strategy for the Racal Data Communications Group.

Meanwhile at Racal-Milgo Limited, marketing director Ron Allatt also becomes deputy managing director. He has been a director of the company since joining in 1969 after 15 years with Solartron, where he moved from sales engineer to general sales manager.

Three others join him on the Racal-Milgo board. John Buckwell, formerly product engineering director, becomes engineering director eight years after joining the company as a product engineer.

Operations manager Derek Fones becomes operations director responsible for the company's manufacturing and distribution facilities at Hook, Hampshire. And Malcolm Hearn becomes sales director after eight years with the company in various managerial sales positions.



Stutard
Hare

Gordon Simmonds, previously a director of Kayser Bendor, has joined MSS as a marketing consultant.

Harry Hoyle, London-based acting manager of Quantum's European computer consultancy services, has been appointed manager. In the US, Daniel Lavery becomes director of consulting services, while continuing as director of Quantum Science's office systems studies, and David Broecker joins as a senior president of Computer Data Access Inc.

Martin Ginger has become product marketing manager at Iel International Europe. Formerly he was a commercial analyst with IBM's commercial analysis systems centre in Copenhagen.

Colin Hazendine, a sales executive with Control Data, has joined Nishua as regional sales manager for Northern England.

Ian Guthrie, Minister Automation, has been promoted from sales executive to London regional sales manager.

Ian Muckenzie has left Solihull Computing Centre, where he was systems analyst in the numerical control department, to join SIA's industrial systems group as a senior NC consultant.



Mike Harvey, president of ICL line of Burlington, Massachusetts. Before joining Infocore, he was president of the US Group of University Computing Company, Dallas.

Stuart Bass has been promoted Reddon Computers from territory manager for the Southern region to senior territory manager for central accounts. South. Simon Shaffer has joined as territory manager for the government branch, from CNE, where he was a senior consultant.

Fred Pritchard of Honeywell, previously Midlands branch marketing manager, has been appointed manager of the Midlands branch.

Ron Goodman, sales executive, has joined from Ragan International to Logabac.

Roger Smith, general manager of MIP Computers, has been appointed director responsible for systems Kingsley Stock joins MIP, as a marketing consultant, from Design Systems where he was a system consultant.

Glenrothes development

EDINBURGH systems consultant Robert Watt has been appointed deputy chairman of the development corporation of Glenrothes in Fife.

He has his own consultancy business and is a Fellow of the BCS having served on its council and Scottish representative. Last year he was awarded the Queen's Silver Jubilee Medal for his services to Glenrothes.

DIARY is on page 12

OP SPOT

Skills of operators untapped

DP MANAGERS often fail to make the best use of the skills of their operators. This leads to discontent and unrest among the staff, who feel that they have no real career path and that their potential is not appreciated and therefore wasted.

It is time for operations staff to take the initiative and to make practical proposals on the organisation of the DP function,



French... "Too many operators are just interested in getting home early."

the development of technical skills and training, in order to raise the status of the operation function.

These were the main points to emerge at a meeting of the Cen-

tral London branch of the Data Processing Management Association last week, at which operations staff had the opportunity to air their views.

Ron Linton, computer operations controller at Manchester Polytechnic; George Stevenson, a contract operator; and Mike Rees and Dave Charles of Opcomm were the four operations staff who addressed the meeting.

All were clearly concerned about the manner in which DP managers fail to recognise, or just ignore, the ability and skills that exist within operations. In this context Dave Charles said, "The industry makes little or no attempt to use the latent skill and ability inside the computer room."

In the same vein, Mike Rees pointed out that, "It is almost as if the DP manager is frightened of seeking opinions from the untapped knowledge and experience of his team of operators."

Ron Linton said that "operators are rarely given the opportunity to demonstrate their capabilities," but named a site where the situation is different, with impressive results:

"At Ferodo, the operators are entirely responsible for the George 2 operating system, having installed it originally. None of the programming staff



Speakers at the conference — left to right, Ron Linton, Dave Charles, Mike Rees, Colin Smith, chairman Malcolm Peltu, George Stevenson.

know — or want to know — anything about the operating system."

According to Dave Charles, the way to make use of the resources within operations is to provide a formalised training scheme, and a clear route of career progression for operators.

He said, "From my conversations with other operators from in and around Coventry I have found one area of common concern — that in the great majority of cases the operators receive little or no formalised training."

He added that most operators are left to their own devices to acquire the skills of the job — the lucky ones getting someone within the department to help

them while the less fortunate are left to "muddle through by themselves."

Other speakers and members of the audience made comments about career progression. Jack French, who is operations manager at the Bishopsgate site of the Bank of Belgium said, "There are many operators who are not sufficiently interested to become involved in technical matters. Too many are just interested in getting home early."

But French added that there are many areas in which operations and programming overlap and that the operators with sufficient interest and motivation should look to move out of operations and into technical support roles.

George Stevenson agreed about the overlap, but said that DP management should accept a broader definition of operations rather than move staff from the department. He added that operators and programmers should be encouraged to work together and that they have

DPMs' criticisms answered

DP MANAGERS often make remarks like these about operators, said Ron Linton:

- 1) "Operators are the least important members of the DP department — programming and systems are the real productive element."
- 2) "Operators have an easy life."
- 3) "Operators shouldn't try to sort out problems with jobs because they don't understand them."
- 4) "Operators can't be worth much, otherwise they would be paid more."

5) "Operators have no interest in their work."

Here are Ron's reactions to those statements:

- 1) "Today many of you are running a routine payroll. Which would have the most effect on the production of that payroll — a walk-out by your programmers, or a walk-out by your operators?"
- 2) "How many managerial staff are capable of running around a machine room, loading tapes whilst the printer is pouring paper over the floor, a modern

is ringing for attention and the console is chattering for operator action?"

3) "Operators exist not just to run jobs but to produce results — they cannot achieve this without thinking."

4) "Pop singers regularly make £1,000 per week, nurses about £50. If you have a broken leg, who do you want — Paul McCartney or a nurse?"

5) "How can operators be expected to be interested when their employers take the above attitudes to them?"

much to learn from each other. John Aska, a senior operator at NCR's site in Brent Cross, London expressed disillusionment at the attitude of DP management. He said, "Until you reach the level of shift leader no-one in management even considers your career path."

Mike Rees said that one of the great causes of resentment among operators is the fact that the majority of DP managers are drawn from systems and programming — with operations being almost totally overlooked.

Aska... disillusionment at the attitude of DP management.

Training essentials

ACCORDING to Dave Charles these are the essentials of the operator's job, and should be at the basis of any training course:

- 1) The operator must know the capabilities of the equipment.
- 2) He must know how to initialise, or IPL the system, and how to set the system parameters.
- 3) He must know the work mix the machine can handle without degrading the response time or the throughput of the system.

4) He should monitor the system performance and be aware of any hardware or software errors which occur.

5) He must be fully acquainted with all housekeeping procedures.

6) He must be fully conversant with the operator commands and messages, including the job control language, in order to obtain the optimum response and throughput.

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Contract staff

RELATING some of his experiences as a contract operator, George Stevenson pointed out some of the difficulties he faces moving from one site to another.

Of DP managers he said, "If DP managers had their installations organised and running in the correct manner contract staff, like myself, would not be necessary."

He added that when contractors

go to a site their experience is often wasted by the "short-sightedness" of the DP manager who puts us on peripheral work almost immediately.

He also pointed out that "permanent staff are sometimes 'resentful' of being 'we earn more than they do' and added, 'They tend to forget that we do not get sick-pay, holiday pay or a pension'."

HINT OF THE WEEK

Use of the SYSLOG

THIS week's hint relates to the use of the SYSLOG in the OS and OS/VS1 environments.

If the system is particularly busy, such as when a lot of machine time is allocated to testing work, the job control section may be inundated with inquiries as to the whereabouts of users' jobs.

The SYSLOG is written to the output queue by use of the following OS command:

"W OUTPUT CLASS"

"The operator should ensure that the SYSLOG data is written to an output class which is not used by other work at the installation and that at least one of the printers gives priority to that class. In this way it will not be left waiting on the output queue for an excessive length of time."

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Minimakers were out in force at Compece Europe, and in this second look at the equipment on show, TIM PALMER examines the latest offerings from several of the leading companies.

Showcase for minimakers

THE annual Compece Europe exhibition provides perhaps the finest showcase for US and European minicomputer companies, and this year's event, held in Brussels earlier this month, proved no exception. Digital Equipment showed the PDP-11/60, Hewlett-Packard stressed the strengths of its new fast 1000 series processors, and Texas Instruments promoted the new DS-990 package for the OEM systems builder.

Modcomp put the Classic 7860 on show, and even a brief examination of the machine shows that it has much more to offer than a restyled cabinet with bold orange and yellow stripes.

The use of high density chips not only cuts the cost of production but also improves both processing and input-output speeds. However, Modcomp remains committed to its traditional use of wirewrapped joints and plug-in semiconductor components. Cooling requirements have been much reduced so that operating temperature never exceeds 5°C

above ambient. As a result the Classic has already passed stringent military specifications.

Modcomp has completely redesigned the Modcomp IV 32-bit processor using that ubiquitous chameleon, the 4-bit AMD 2901 bit-slice chip. The Classic features variable word-length, offering 8, 16, 32, 48 or 64-bit working, and Modcomp offers a complete instruction set for each word-length. Other features include one or two dual input-output processors and a floating-point processor, and a complete rethink of security, reliability and ease of servicing facilities. Even so, the

Classic is fully software compatible with the earlier Modcomp minis.

At the top end of the scientific market, Norsk Data is the leading European minicomputer company by virtue of its formidable Sintran III operating system. The company suffered somewhat by having a stand bare of equipment, but representatives were on hand to promote the merits of the new Nord TPS transaction processing system, which integrates the Sintran operating system, the Sbas database management system and Norsk communication facilities into one package.

The Nord range of minicomputers covers the DEC PDP-11 line from the 11/34, through the 11/70 and the VAX-11/780 to the DECsystem-2050. At the top end the increased performance is achieved by using the Nord-50 32-bit back-end processor.

The Norwegian company has one system in Belgium at present, at the University of Liège, where it is used to control a cyclotron, and it will open a Brussels office later this year. New markets sought by the company include distributed database city administration systems and advanced banking applications.

Minicomputer highlight of the show was the new Modcomp Classic 7860, a 32-bit machine in orange and yellow stripes, which attracted considerable attention from the 5602 visitors to the three-day event.

New from General Automation are a doubling of the memory capacity on the 16/220 microcomputer to 84K words, making Cobol compilations a practical proposition for the first time, and the addition of a MOS memory option on the 16/400, which thus becomes the 16/400.

British sensibilities persuaded Harris to drop the name Slash for its line of 24-bit processors. The current Harris processor is now simply the Model 6, and forms the basis of the System 100 family, all of which run under the comprehensive Vulcan operating system. Vulcan supports simultaneous multiple batch streams, interactive time-sharing and multiple remote job entry to different mainframes, and also allows eight different language compilers to be used simultaneously.

Those available include Cobol, Fortran, RPG II, Basic, Snobol, Forgo, which is a diagnostic Fortran, and APL, which will be announced formally next month.

The difference between the three models, the 115, 125 and 135, lies in the number of users supported. The 125 is the workhorse of the range, and supports up to 30; the 115 takes eight and the 135 up to 120. Maximum memory capacity is 256K words, and the 125 offers one Megaword of virtual storage, and the 135 four Megawords.

Traditionally a scientific and engineering machine, the Harris system has made an almost clean sweep of engineering companies in Holland, where only one of the big companies bucked the trend and went to another supplier. Options for this market include a double-precision back-end floating point processor, and the Harris machine competes with the DEC PDP-11/70, the VAX and the HP-3000.

Like most of the minimakers, Harris is moving into the commercial market, and has installed a system with NRV Holidays, the biggest Dutch tour operator.

The Compece demonstration showed simultaneous Cobol processing, with a Fortran stress analysis package and interrogation of a Total database.

Perkin-Elmer Data Systems has turned to the AMD 2901 chip for the low-cost Interdata 5/16 mini, and is going hard after the IBM market.

It claims 90% software compatibility with IBM 370 on its 32-bit machines, and reports that OEM customers in the US are adding microcode to the Interdata 7/32 and 8/32 to make them 100% compatible with IBM.

SEMS' Solar line is much stronger in Belgium than the Mira line, for historical reasons, so the French minimaker concentrated on the Solar 16/40 mini, running the Muxex multi-transactional exchange operating system, one of seven offered on the Solar 16 line.

The Solar machine offers up to 16 Megaword of main memory, and microprocessor systems up to 16/400 are supported.

French aim for £150 telecopier

IN an effort to promote the widespread use of facsimile as an alternative to mail, the French government is trying to encourage the development of a very low cost telecopier for mass use.

The price the government has in mind is about £150. France (£150); but Sére, the only French manufacturer of an automatic telecopier, is sceptical of the feasibility of this.

As a first step to promoting the swing to electronic mail, the French PTT has ordered 2,000 of Sére's S360 fax machines for its own internal network.

School for scandal

THE proprietor of a computer training school in Detroit has been charged with defrauding the US government of money obtained as grants for needy students. He has already lost a civil action brought by the government to recover the money, and now faces criminal charges.

Henry Borcherting, founder and owner of the Institute of Computer Technology, submitted 2,000 applications for grants from recipients of welfare benefits who wanted training as key punch operators, computer operators, and programmers. Under the Federal Government's Basic Educational Opportunities Grant Programme set up in 1972, Borcherting was said to have received \$380,103 before auditors moved in and charged that many of the students never attended classes, and many of the classes were never held.

Small systems for small countries

SMALL computers for small countries is the theme of the British Computer Society Specialist Group for Developing Countries meeting in June in Hugu, recently returned from a tour of the Indian sub-continent and Frank Land, a lecturer at the London School of Economics, will speak at the meeting, to be held at LSE on June 14, starting at 6 pm.

Another meeting on July 5 at the same time and venue will be devoted to SCAPA, a system designed for the application of computers to rural development.

Amdahl opens Irish plant

FORMAL opening of Amdahl's European manufacturing plant in Dublin took place yesterday Wednesday, at a ceremony performed by Dr Gene Amdahl. The plant is in the Dublin suburb of Glasnevin, but is to be transferred to another suburb, Swords, next year.

Amdahl now has two 470 V6s installed in West Germany, one in Switzerland, two in Norway and one each in Italy and France. There are also V/6s in Denmark and the UK.

Classic models

THE next models in Modcomp's new Classic line are set for launch on July 18, says US sources. The new models will offer more power than the Classic 7860. The other will be a smaller low-cost machine to supersede the Modcomp II. The Classic processors are built from AMD 2901 four-bit bit-slice microprocessors.

Computer scientist Professor Ewan Page has reached one of the top rungs of the academic ladder with his appointment

as Vice-Chancellor of Reading University. Here RORY JOHNSTON assesses the role of Professor Page — "a man

with a relaxed manner and a cherubic grin" — in firmly establishing computer science as a respectable discipline.

Computerman who reached the top of the academic ladder



EWAN PAGE... "to be accepted by the academics as a local is quite an achievement."

FEW institutions in Britain are more surrounded by tradition than the universities. Caps and gowns, the rituals of centuries, and the ghosts of William of Wykenham and Lady Margaret Beaufort can easily make someone from such a brash, upstart discipline as computing feel totally out of place.

So it is a notable moment in the development of computing as an academic subject when a computer scientist first reaches the topmost rung of the academic ladder, as Professor Ewan Page has done in being appointed vice-chancellor of Reading University.

If computer science is now firmly established as a respectable discipline it is due in no small part to the efforts of Professor Page, who for the past 22 years has been developing the computing at what used to be King's College of the University of Durham, and is now Newcastle University.

Starting as a lecturer in statistics, he was instrumental in starting up both the computing service and the academic department at Newcastle, which he now heads.

Indeed, he was one of the pioneers of British university computing in both these respects.

Originally a mathematician, Professor Page's first brush with computers came at the statistics laboratory at Cambridge, where there was an Edsac 1. He took his bachelor's degree and doctorate at Cambridge, and then moved North to Durham, thence to Newcastle, where he has been ever since.

The first computer at Newcastle was a Pegasus, installed in 1957. This was one of the first

batch of computers actually bought by universities, rather than built out of "string and sealing wax." It was eventually sold to Parsons, the engineering firm, and replaced by a KDF9 in 1963. Newcastle is now firmly established as an IBM user, with a 370/168 and a 360/67 — and a sizeable reputation throughout the UK as a source of innovation, particularly in online retrieval.

Professor Page was determined from the start not to separate the computing service for the university and the teaching department, as is done at many universities. He regards computing as being part way between a pure and an applied science, with his own personal inclination lying in the middle of these two; and he felt it was important for the service people to remain close to the consumer of the product. The cross-influence between the two groups, he feels, is a good stimulus for both.

The fight to establish computer science as a respectable intellectual discipline and not just a craft has been one of the principal concerns of Professor Page's career. From the start this was helped by Computer Science being set up as a department on its own at Durham University, and not a department of King's College; but it was still a long struggle to attract able students and institute a good postgraduate department, by manipulating the computer curriculum around those of the more established subjects.

A measure of Professor Page's success can be seen not only in the computer science degree courses, but in the subjects taught for other departments. Computing is now taught in every faculty in the university except Law. All engineers and most scientists now study it, as well as many students in the arts and accounting.

Newcastle has made a name for itself in several areas of computer research. The Medusa

system for online bibliographic information retrieval provided the first access in this country to Medlars, the American medical database.

More recently, Professor Brian Randell's project on fault-tolerant software has received the British Computer Society's award for technical achievement.

Work is also being done on programming methodology and computer-aided design of software, and a joint commercial venture has been set up with CAP to produce software for microprocessors, and possibly even design new micros.

As for establishing the status of computing with the public at large, Ewan Page declares himself not to be a campaigner. He is concerned, however, with the issue of professionalism. He feels that many people drifted into computing without formal training and lacking a broad enough base of knowledge to adapt to changing technology. A high degree of flexibility of

approach is needed in computing, he feels, and a programmer needs to be trained to tackle a wide range of problems, and to be aware of the many different solutions there may be to the tasks facing him. This is a natural enough attitude for a man who has spent his life teaching computing.

A man with a relaxed manner and a cherubic grin, Professor Page lets it be known that one of the proud moments for him was when a Newcastle paper headlined the story "Northern academic wins new post." To be accepted by the academics as a local is quite an achievement — even after 22 years.

The switch out of computing to dealing with the weighty problems of university administration will not be too much of a shock; he has been pro-vice-chancellor at Newcastle for the past six years.

He hopes, he says with a smile, to be invited to give some lectures at Reading, if he has the time.

NEWS IN BRIEF

Good connections

THE Cross-City Line in Birmingham, a new rail-link running from Longbridge in the South-West to Four Oaks in the North-East, is making use of advanced technology in its signalling and communications.

The main signal box at Saltley, and three firing boxes have been equipped with 4M control systems from Vaughan Systems and Programming, of Ware. The system is based on modules using the TMS0900 series 16-bit microprocessors from Texas Instruments.

Increased profit

FOR the six month period to the end of January, Kalamazoo reports a gross profit of £1.27 million, an increase of 11 per cent over the same period last year, on sales of £9.8 million, which were 21 per cent higher than last year. Its computer services division accounted for 25 per cent of the profits.

Range extended

CLUSTERED word processing systems have been added to Wordplex's range of display WPs. Called the Wordplex 1.2 and Wordplex 1.3, these systems have two and three typing stations respectively, and one printer shared between the typists.

Flexel order

LARGE numbers of controllers and indicators from its Flexel range have been ordered from Kent Instruments, a member of the George Kent Group, by Foster Wheeler, the main contractors for an extension to the Lindsey Oil Refinery, near Grimsby.

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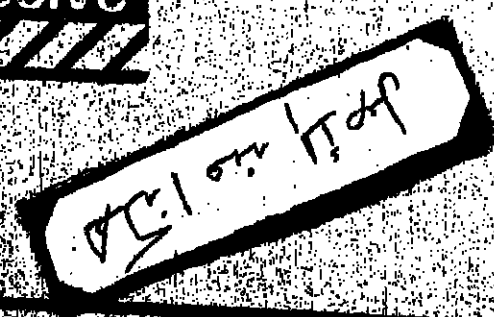
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Clash of human and machine expertise

DONALD MICHIE
REPORTS ON THE
ADVANCES IN
COMPUTER CHESS
EXHIBITION
AND CONFERENCE

THERE was plenty to interest both chess and computer people at the two-day event, 'Advances in Computer Chess', held at Edinburgh University. One of the highlights was an exhibition match between Master, Britain's chess program, and Michael Clarke, director of the conference.

The match, sponsored by The Times, was commented on by US National Master Danny Kopec. Match director was International Master Harry Golombek.

Clarke's playing strengths lie in the expert range, one level down from National Master. My own conclusions from the match was that if Master is ever to cause anxious moments for a human chess master (such as David Levy), then it will need extension of its present 5-7 ply lookahead to a solid 9 ply.

But the program, developed by John Birmingham and Peter Kent, is a considerable technical achievement, especially considering that it has been done as a spare time pursuit only.

The program ran on the Atomic Energy Research Establishment's IBM 370/188 at Harwell, and was accessed remotely from Edinburgh over the public telephone system.

A different clash between human and machine expertise took place during the computer chess exhibition, sponsored by Computer Weekly. An exhibit mounted by Tim Niblett, of Edinburgh, provided an interactive terminal connected to Ken Thompson's database for the King-Rook-King-Knight ending.

Niblett had implemented it on the Edinburgh Digital Equipment DECsystem 10 in such a way that an end-game expert could play across the board against a machine-stored optimal strategy.

Until recently it was believed that there is not a great deal to be known about the King-Rook-King-Knight ending and that what there was could already be found in the books. Niblett and others have recently shown that these suppositions are spectacularly wide of the mark.

To drive the point home, such giants as Craig Pritchett, reigning champion of Scotland and Britain's No.1 end-game expert, John Roycroft, were given positions of the King and Rook vs King and

Knight game, and invited to play the Rook side to victory against the database. The latter has some three million positions, with the Knight's side best defensive move entered against each.

Lured by intellectual curiosity rather than by the substantial money prizes offered, the chess masters tried repeatedly to win. But the prizes remained unclaimed.

The next research task, on which several of the conference papers had a bearing, is the use of the computer-derived knowledge to rewrite the text-books, so that chess masters of the future can stand on the shoulders of today's man-machine skills.

Contributions by Michael Clarke and Don Beal of Queen Mary College, London, emphasised this same theme, ie the refinement of existing book theory in respect of clarity, accuracy and completeness.

Clarke's paper, and a paper from Max Bremer, of the Open University, showed that even so humble a problem as King and Pawn vs King offers rich material for computer-aided theory building.

On a different note, John Moussouris of Massachusetts Institute of Technology, and Oxford, and Kevin Coplan, with a home-built chess machine, gave glimpses of a highly topical question. How should we blend super-powerful, highly parallel, special peripherals into integrated man-machine problem solvers?

Another overseas contributor, Jacques Pirat, of Paris University, revealed new details of his program for finding deep tactical combinations. Outclassing as it does Grand Master skill at this narrow task, the program is at the very least a coup de theatre.

But it is much more, for this performance has only been achieved (some say could only be achieved) through a structure of goal formation and reasoned planning which closely parallels the tactical thinking of the chess master.

The man-machine which stole the show was Edinburgh Regional Computing Centre's display of its adaptation of the University's EMAS interactive software system for ICL's 2900 new range.

Three chess programs — strong, weak and beginner — were available, on seven terminals connected to the center.

effect of the advent of X25, and the benefits of the experiment to future public data networks.

John Wong of Waterloo University, Canada, uses a numerical queueing network model to analyse the performance of flow control techniques. He shows how degradation of total throughput under certain loading conditions can be avoided.

The journal invites technical articles covering all aspects of the use of computers and telecommunications technology.

Details from Gareth Jones, ITC Systems and Technology, Press, 32 High Street, Guildford

Feldman and Don of the Post Office the lessons learned from the Experiment Switched Service expeditions from 1969 to 1977.

THE second issue of Computer Communications is now out, and it contains articles on Euronet, the Post Office, and packet switching and other aspects of network operation.

The bi-monthly international journal aims to provide in depth coverage of developments in standards and protocols, the design and construction of computer systems.

Barcelona seminar offers major contribution to data encryption

AS the value of computer data grows rapidly every year, the subject of data encryption becomes more vital, but expertise in the subject is spread thinly and information hard to come by.

A concentrated 2½-day seminar in Barcelona from June 18-20 promises to make a major contribution to understanding of the problems and solutions proposed.

Entitled Commercial Cryptographic Technology, it is being organised by Ketrion Inc of Wayne, Pennsylvania.

The seminar will present two basic methods which result in strong cryptographic systems. It will examine the US National Bureau of Standards' specification for a data encryption standard, discuss the use and administration of cipher keys within an organisation, and address the issues of cryptographic key generation and authentication.

The seminar will be led by David Freeman, of Ketrion, who spoke at the Infotech seminar on IBM and the future, in London last March.

Lecturers will include Dr Carl Meyer, whose work contributed to the NBS standard; Dr Walter Sedelow, Professor of Computer

drives. It is programmable in a subset of Cobol, and comes with 32K or 64K words of memory.

The UDS-2000 also supports a stand-alone, floppy drive accessible from all terminals, character and line printers, card reader, interpreting punch, and nine-track tape unit.

The power of the processor suggests that the new system will offer considerable growth potential in the future.

Transdata deal with Ultronic

LOOKING for a high reliability printer for its new Model 311 time-sharing terminal, terminal manufacturer Transdata has turned to Ultronic Data Systems, a company in the Dowry group. The OEM agreement calls for Ultronic to supply a minimum of 100 Ricoh RP40 double high-speed printers over two years.

Hard-pressed as they are, DPMs do communicate and through many different channels. Direct personal contact proves most popular (only two DPMs work without it), with system documentation a close second and used by four out of five installations.

The well-tried steering groups are used by just over half the respondents as, more surprisingly, are induction presentations.

Three ad hoc methods follow in popularity: fault reporting systems (used by 47%), seminars/briefings (40%) and a hot line for user problems (37%).

When one looks at the rated effectiveness of techniques, a different picture emerges. Rated most effective is one of the least used: the DP information officer who scored an average of 92% for effectiveness. Direct personal contact scored 86% and joint third place went to the hot line and the developing of users with specialist DP knowledge in their own departments (77%).

Two little-used approaches — assigning DP staff to user departments and the use of joint task forces — scored 75%. Systems documentation scored only 61%. Surveys of user understand-

ing and attitudes, on the other hand, scored highly for effectiveness (75%).

In any fast moving situation, less formal communication tends to play a key role. The survey confirmed this; documenting skills may be needed, but only 7% rate them most important for successful user relations. Over two-thirds stated interpersonal skills (eg interviewing) contributed most.

DPMs were given four user relations problem areas and asked to assign absolute ratings of importance to each. Those offered were:

● Support for existing users (eg advice, education, documentation, etc)

● Management of change

● Employee education — making all staff aware of the basics and potential of DP

● Management education — getting across the need for an integrated DP strategy

All are outside the DP shop and some are not traditional concerns of DPMs. Yet all received high ratings and three emerged as "vital."

If relations and communications matter so much, one would expect the DPM to hold the reins. In most cases he does so, but in nearly one-third of cases no single executive retained control. And only one in five DPMs has an overall communication plan. Not surprisingly, then, few DPMs are able to ensure the success of their user relations on a regular basis.

DPMs were asked to describe the major obstacles to successful user communications. Answers varied widely but fell broadly into three groups: 1 Problems inside the DP department; 2 Problems of communication itself; 3 The attitudes and outlook of users.

The most common internal problem cited was sheer lack of

Last Year, Computer Weekly and the Data Processing Management Association organised a workshop on improving DP/user communications (CW, December 8, 1977). At the same time a survey was conducted of DPMA members on this vital topic.

NIGEL LAURIE of Communications Audit, who developed and presented the workshop and designed the DPMA study, reports on the findings of the survey.

Later this year, Computer Weekly, the DPMA and Laurie once again will

be organising a workshop on successful user relations (see coupon).

In this article Laurie explains why, although user relations might seem to be a thorn in the flesh of DP managers, they offer enormous opportunities to the DPM who can communicate well.

How the DPM communicates

"It's vital, but we just don't have the time or resources," was the view of many DPMs who took part in the survey of DPMA members on improving DP user communications. It reflects the dilemma facing today's DPM: should he run the DP shop or manage the relationships between DP and the rest of the organisation?

The mini-survey of what DP managers are really paid for showed how internal matters eat up the DPM's working day. Yet few would dissent from the claim of one that "the initiative and responsibility to establish and maintain effective communication rests with DP management."

Hard-pressed as they are, DPMs do communicate and through many different channels. Direct personal contact proves most popular (only two DPMs work without it), with system documentation a close second and used by four out of five installations.

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The most common internal problem cited was sheer lack of

resources, such as time and people with the right skills. As a result, the communications job (eg writing a user guide) is not done well first time, so user queries return to plague busy DP staff later.

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Nigel Laurie reports on the survey findings

QUOTE

"In a large organisation the problem is ensuring that all levels of user from board to clerical and shop labour are appropriately informed — the variety of approaches is an obstacle to success." — DPM, Worcester.

their development — are: resistance to change (and to "old tricks for new dogs" as one DPM put it), differing priorities or "lack of commitment" and lack of top management support. All make open communication hard to establish — and all make it very necessary.

Asked for their practical advice, the DPMs offered many comments. Some will meet special needs but others will certainly apply to most installations.

● Users welcome a choice of communication channels. They prefer access to formal and informal techniques, one-way and two-way methods and ones they can invoke when they wish as well as those initiated by DP.

● "Always provide a formal and informal route for suggestions, questions and complaints and accept all, gratefully" was one DPM's way of putting it.

● Formal channels are needed — but they are rarely enough. They do not encourage helpful but low key user comments. A suggestion or complaint made in passing, commits neither side and yet can alert DP to likely future troubles. A formal complaint, sent through the fault reporting system, is a different matter. It may be delayed until the problem reaches a more critical stage. In short, "too rigid channels of communication discourage individual initiative and encourage users to live with their problems."

● Users need to be told why communication is important. If they are not, the lack of feedback may cause problems which affect them later.

● Users need named contacts and easy access. They should

approaches "have DPMs found most profitable?" Responses came from 43 installations employing more than 1,700 staff in departments ranging in size from two to 500 staff (average 40). They service more than 1,500 directly interfacing users in organisations ranging in size from 50 to 35,000 staff (average 2,803).

Survey analysis was carried out by Abraham and Partners using facilities provided by ERA Computer Services of Leatherhead. The help and services freely provided by these organisations are gratefully acknowledged, also all the DPMA members who took part.

About the survey...

THE survey was carried out by Communication Audit in association with the DPMA. Association members received a postal questionnaire and selected respondents were surveyed in more detail by telephone.

The purpose of the survey was to establish some basic facts about DP/User communication:

● Which techniques are used most — and which are rated most effective?

● Which skills are most important?

● Which key areas have top priority?

● Why are user relations sometimes difficult?

● What communication

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Survey analysis was carried out by

NORTHERN APPOINTMENTS



How to make the best use of our resources

By Val Halliwell

AFTER spending some time working in Holland last year, what a wonderful feeling it was to drive from Hull to Manchester over the Pennine Range which seemed to welcome me as a long lost friend. After the monotonous flatness of Holland, with all due respect to our Dutch friends, one suddenly becomes aware of what magnificent countryside and scenery the North of England has to offer; the rolling Cheshire plains, the Bronte country of Yorkshire, the Lancashire and Derbyshire Peak District and Dales in addition to the many cultural centres and University towns.

The quality of life in the North of England is second to none, offering first class support to the sporting

world, the Arts and, in general, facilities for a full family life. The area is also exceptionally well served by motorways.

Traditionally, the North of England grew up around the manufacturing industries and, having been quick to computerise, it can therefore offer skilled computer staff the whole spectrum of applications ranging from the pure scientific to sophisticated production and inventory control.

Having been in the computer industry for nearly 10 years, spent mostly on the recruitment side, I have seen it go full circle.

Currently, as the pages of Computer Weekly will testify, there is a well-established shortage of skilled professional personnel

in the marketplace. It is clear that the present shortage of trained DP staff results from the failure of DP departments in the past to invest enough in training. The situation has been further aggravated by the reluctance of many companies to take on those with little or no experience.

However, as the past 12 months have seen a dramatic increase in staff requirements, due mainly to many companies embarking on ambitious development and expansion programmes shelved during the early 70's, problems in recruiting qualified staff have encouraged a number of companies to organise their own training programmes.

One example is the Littlewoods Organisation in

Liverpool, which has set up an excellent training school, off site offering a structured comprehensive training scheme for the whole of management services. While the Tops courses are producing some useful programmers, another source of professional competence still to be recognised comes from the Specialist Groups set up by the British Computer Society for the Physically Disabled.

We tend to think that the accident will only happen to the other fellow, but how easily could we become physically disabled. I feel we should give the disabled more opportunities to prove themselves in the computer industry and that this is an obvious and, until now, untapped source of manpower.

The North of England not only offers breathtaking countryside comprising the Pennines, the Dales and the rolling Cheshire plains, but also excellent facilities for sports and general arts for leading a full life. The area is also well served by industry and so offers ample opportunities for skilled computer staff, writes Val Halliwell, managing consultant of Victoria Appointments.

But there is a well-established shortage of skilled professional personnel in the marketplace, comments the author, and goes on to give some valuable advice on how to tackle this problem. Being a member of the BCS Specialist Group for the physically disabled, Miss Halliwell wants the companies to particularly seek and train the staff among the disabled.



Recruiting additional staff is not an automatic solution. An alternative is internal recruitment. There are many junior staff in organisations who are able and willing to be retrained for computer work. This ties in with the great advantages for a company of developing its own staff. By utilising existing staff, offering them responsible work with real career prospects within the company, it is possible to reduce staff turnover.

The Operations area in particular holds good potential. Given formal training and adhering to set standards, it is possible for the operator to couple his technical expertise with programming techniques available in the installation of

new software and applications to the system.

Another area in which development is going on is that of management progression. The ability to successfully manage and direct the technicians in DP is becoming more of a science than ever. There have been great strides in this area with data processing managers recognising that a large part of their job is the direction in which they guide the careers of their staff, as well as the delegation of responsibility to their departmental heads, thus creating a clearly defined career path.

Once the computer professional has accumulated worthwhile technical experience, the most sought after requirements at present are in database and

telecommunications. Having made a self assessment of his/her abilities, it is often useful to gain confirmation in the form of career guidance before moving to a new job. So often, after a good start to their career, people go off at a tangent to satisfy a whim, thereby jeopardising their future prospects.

The majority of long established recruitment consultancies offer a career guidance service and by being in constant touch with their clients are well equipped to advise candidates on the training facilities and policies together with future career prospects. A particular employer is able to offer, thereby ensuring full utilisation of the skills he has available.

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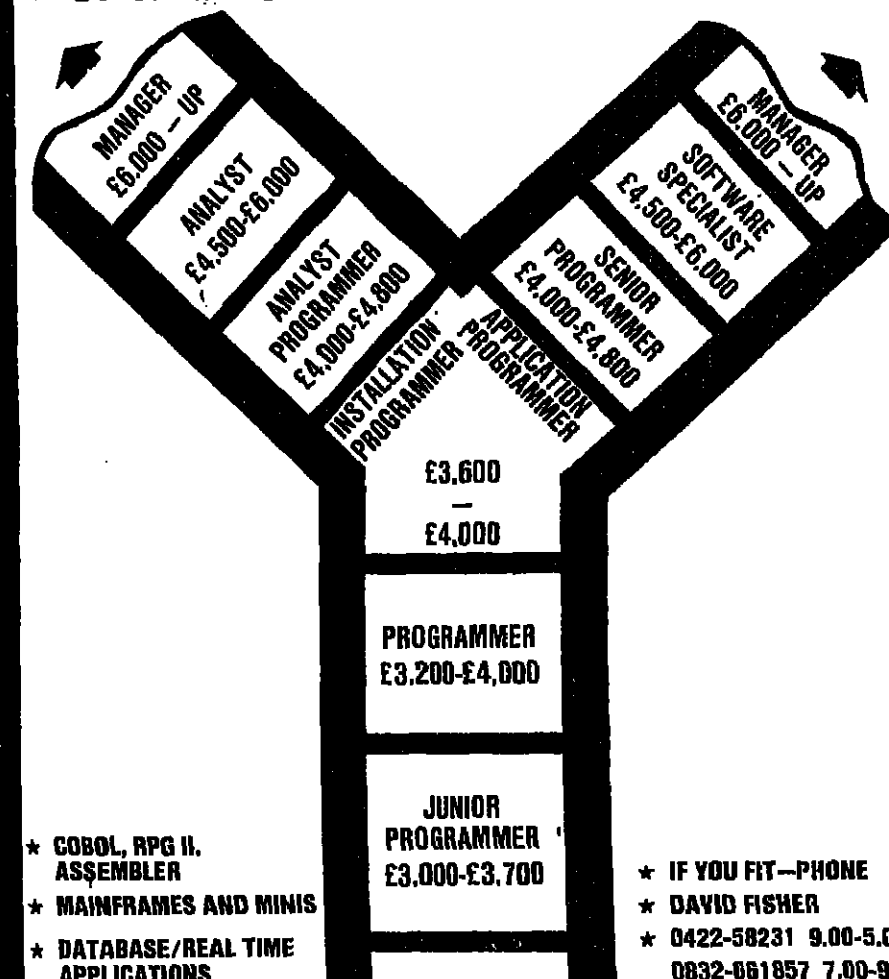
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VA

WEST YORKSHIRE

Systems Programmer

This progressive mail order company now requires a Systems Programmer to join a small team providing technical support to the Computer Services Department using ICL 1904S (Dual ICL 2960 next year), DEC PDP 11 and IBM 370/138. There will be major responsibility for the development, maintenance and advising on the use of all non-application software, including liaison with external suppliers on evaluation of new software and hardware in addition to resolving problems with existing facilities.

Candidates should have a minimum of 2 years' IBM DOS/VS Systems Programming experience, knowledge of DEC and/or ICL being an added advantage. The Company offers first class terms and conditions of employment with exceptional opportunities at a Senior level for a person with particularly relevant experience and management skills.

Relocation expenses will be paid where appropriate.

Ref. C.1578

LIVERPOOL

Production Control Manager

One of Britain's leading retailers has a vacancy for a Production Control Manager on their central configuration. The job involves the control of a small section of staff who are responsible for the processing of work through Operations, the scheduling of their supply and distribution, and performance measurement of the installation. The Manager of this section will eventually have a full appreciation of the business requirements, and will be responsible for ensuring all work is scheduled to meet the user department deadlines.

Applications are invited from both men and women who have at least 5 years' Computer Operations experience, some of which must have been in a supervisory capacity.

Good 'A' Level education is preferred and the suggested age group is 25-35 years of age.

Ref. C.2578

Trident Management Limited, Leeds

2 Programmers

Two full time young and enthusiastic programmers are now required to join this small team currently engaged on a contract project with plans to develop exciting new on-line TV-Build applications.

Best experience in some of the following fields would be an advantage:

- COBOL
- ASSEMBLER
- FORTRAN
- BASIC
- ALGOL
- PASCAL
- LISP
- PROLOG
- ADA
- PL/I
- REXX
- JCL
- DB/DC
- DB/VS
- DB/2
- DB/4
- DB/6
- DB/8
- DB/10
- DB/12
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- DB/96
- DB/98
- DB/100

Ref. C.2578

LEEDS

Systems Analysts and Programmers

We are looking for additional Systems Analysts and Programmers to meet the increasing demand for computer development in this Group of Manufacturing Companies.

The development policy within the Group is towards distributed processing with on-line facilities to a central ICL 1901T mainframe.

We are looking for:

1. Systems Analysts with a sound practical approach to the solution of business problems and 2 years experience of developing and implementing new computer systems.
 2. People with some programming experience who wish to take the opportunity to be trained as Mainframe mini-computer programmers.
 3. Experienced Mainframe programmers with some design experience.
 4. For the mainframe, programmers with a minimum of 2 years' experience of writing PL/I and/or COBOL programs in a tape and disc environment. Experience of design and communications programming will be an advantage.
- Ref. C.4578

PRESTON

Program Designer

(NEW APPOINTMENT)

An opportunity now arises for a DP Professional with approximately 4.5 years' DP experience gained in programming and/or Systems Analysts to take up this NEW APPOINTMENT of PROGRAM DESIGNER. The successful candidate will liaise with the Systems and Programming teams who are currently developing an IBM 370/158 computer system. Candidates with communications background gained in an ICL 1900 environment would be of particular interest to this Client.

The Company offers excellent prospects for Personal progression and is situated in a brand new purpose built office block. Assistance will be given with relocation where necessary.

Ref. C.5578

ARMSTRONG

NORTH HUMBERSIDE

The Armstrong Group of Companies is a major international supplier of industrial machinery to both the original equipment market and through its own wholesale distribution network. It is also active in the fields of industrial buildings and plastics.

This introduction of a new Homebuilt 66 has created the following vacancies:

SYSTEMS PROGRAMMER who will implement and maintain TOS, GEC and other software together with monitoring machine performance. A minimum of two years' experience in this function is preferred and the successful candidate will be given a salary commensurate with experience.

SYSTEMS ANALYST who will work with processing systems associated with the distributed function. Broad based experience of three or four years' on distributed applications from finance through stock control to order generation. Some form of plant control experience will be an additional asset.

COMPUTER PROGRAMMER who will be involved in a wide variety of applications. Experience in Cobol and a minimum of two years' experience. The company environment is being upgraded to a modern day computer system. These posts are based in North Humberside where there is a growing and successful company. Relocation assistance offered where appropriate. Future development opportunities are outstanding. This is a first class track record and offering competitive salaries.

Ref. C.4578

ANALYST/PROGRAMMERS

THE CLIENT

Our Client is a new division of a multi-million pound organisation operating in the North-West, but with substantial overseas and UK operations.

They are engaged in the marketing of mini computers as a Turnkey operation and in the provision of software services to a variety of clients and their own Parent Group.

With a five year company development plan they require ambitious people who will be capable of performing a Consultancy role in the near future. There are positions available in the North West and London.

For further information and a local interview, contact your nearest regional office.

021 643 4433

THE APPLICANTS

The ideal applicants will have approximately two years' commercial applications experience on mini computers and preferably a Computer Manufacturer/software house background.

The ability to communicate is essential and the preferred languages are COBOL, RPGII, COBOL, or ASSEMBLER.

Whilst commercial experience is preferred, consideration will be given to Technical applications people with good mini experience.

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Analysts with 2 years' experience of Production Control and/or Financial Systems are required to work with and be directly responsible to the Senior Systems Manager of the respective section.

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In addition to exceptional working conditions the Company has an excellent pension scheme and the successful applicant will be eligible immediately for the participation in the Companies Productivity Bonus scheme. There are 4 weeks' holiday and relocation assistance is available where necessary.

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CP

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SYSTEMS ANALYST £5,500

Good commercial COBOL background for HONEYWELL level 66/20. Bureau experience desirable but not essential. Excellent prospects in fast moving environment

PROGRAMMER £5,000

3/4 years' COBOL and/or RPG II experience, IBM or ICL commercial applications. Excellent prospects offered in expanding Software House. Smart appearance, customer contact.

PROGRAMMER £4,000-£5,000

Preferably with 2/3 years' low level ASSEMBLY experience — ICL equipment — fast moving bureau environment. Prospects excellent and a chance to move into systems work

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Must have low level ASSEMBLY background with 3/4 years commercial experience to join a young forward looking Software House ICL experience preferred but not essential

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COM PROGRAMMER £5,500 + bonus

Computer output — Microfilm developing into Technical Systems, ICL, IBM or HEWLETT PACKARD knowledge. Customer liaison/ travel and Management prospects. Wide range of languages considered.

SYSTEMS ANALYST £6,000 + allowance + bonus

Software House covering North-west region. ICL or IBM languages desired e.g. COBOL — ASSEMBLY — PL1 or RPG11. Chance to specialise — flexible hours.

PROGRAMMER £4,000

COBOL programmer with ICL background to work on 2903 interfacing with VDUs. Early progression to Senior Programmer, project leader and eventually DPM.

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Real time data collection and data acquisition. Working in a team of four. Mini computer and Assembler experience is essential. RTL 2 and Coral helpful.

SNR. ANALYST/ PROGRAMMER To £5,000

Commercial applications development on Burroughs medium systems. Project responsibility and staff control envisaged. A Cobol background is required.

SYSTEMS PROGRAMMER To £6,500

This client requires an extensively experienced OS Systems Programmer. The major responsibility will be the setting of standards and changes to Operating systems.

SYSTEMS ANALYST c. £5,000

Major development and implementation of commercial systems on mini computers. There will be some travel between the four sites, therefore a driving licence is required.

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Contact— Peter Smith or Ruth Cayley

1. Programmer	RPG II	Liverpool	c £4500
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5. Programmer	1 yr Assembler	Liverpool	to £4705
6. Sales	Package sales	Manchester	c £8000+
7. Programmers	Cobol/Assembler	Birmingham	to £4750
8. Analyst	Financial/banking exp.	Manchester	to £5600
9. Programmers	High level language	Liverpool	to £6000
10. Programmer	Min. 1 yr Cobol	Manchester	to £4500
11. Systems Programmer	Cobol or Plan	N. Manchester	to £5500
12. Analysts	Commercial exp. and programming	Surrey	to £7000
13. Analyst/Programmer	Cobol	Witral	£good
14. Programmers	1900 Cobol or RPG II	S. Manchester	to £5500
15. Programmers	Min. 2 yrs. Cobol	Manchester	to £6000
16. Analysts	Min. 3 yrs. experience	Liverpool	to £6000
17. Systems Programmer	IBM exp. + CICS	Manchester	c £6000
18. Senior Programmer	IBM Cobol/Assembler	Lancashire	to £4550+
19. Sales	Software house	Liverpool	£7000 Basic + car + bonus
20. Analyst/Programmer	Basic + min exp.	London	to £6500
21. Programmers	Cobol experience	Liverpool	to £5000
22. Analyst/Programmer	Commercial experience	Manchester	to £5500
23. Programmers	Mini experience	Various	to £5500
24. Trainee Programmers	Operational background, HND or degree	Various	£neg

Sheffield

Contact— Bill Baker

1. Trainee Programmers	Graduates	South Shields	to £3000
2. Programmers/Senior Programmers	ICL or IBM Cobol	Leeds	to £6000
3. Programmer/Prog. Team Leader	A & PDE 11/70 Basic +	Leeds	to £5500
4. Programmer	Mini packages	Leeds	to £5000
5. Systems Programmer	IBM 370 DOS/VS	Bradford	to £6000

6. Software House	IBM and ICL Cobol and Assembler	West Yorks.	to £5000+ bonus
7. Programmers	IBM Assembler	Bradford	to £5000
8. Systems Programmer	IBM 370, DOS/VS	Huddersfield	£ Neg.
9. Senior Programmer/Analyst	IBM 370 Cobol	Wakefield	to £5500
10. Programmer/Senior Programmers	ICL Cobol	Hull	to £5000
11. Programmers	IBM Cobol or Assembler	Sheffield	to £5000+ bonus
12. Programmer/Senior Programmers	Univac, Cobol	Sheffield	to £6000
13. Programmers	ICL 2904, Coral	Lincoln	to £5000
14. Programmer/Chief Programmer	PL/I	Hull	to £6000
15. Analyst/Programmers	Commercial systems	Leeds	to £5500
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17. Analysts	Commercial systems, Minis	Leeds	to £6000
18. Senior Analysts	Solid commercial background	Hull	to £6000+
19. Project Leader	IBM 370, Trial	Hull	to £6000
20. Senior Systems Designers	IBM, Commercial systems	Leeds	to £6200
21. Analysts	Management systems	Sheffield	to £6000
22. Project Leaders	Commercial & Financial	Sheffield	to £6500 now + review
23. D.P.M.	ICL 2903 Site	W. Yorks	In July to £6000 (review soon)
24. Sales	Bureau and Minis	Leeds	to £14000+ car

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CP

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* Our client who has one of the largest and fastest growing IBM purpose-built computer centres in West Yorkshire, would like to recruit Programmers to complement their expansion programme for 1978.

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JBA

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London/possible overseas travel starting up to £7,500
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Sales Support Analysts

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For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

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Consultant Analysts & Programmers

Surrey up to £7,000
A progressive and expanding U.K. company is seeking to appoint additional competent analysts and programmers to work on development of technical systems incorporating software and scientific aspects. Candidates should have at least three years in the computer industry and be able to design and carry out analysis of real-time applications on mini computers. This is an excellent opportunity for the ambitious technician to join a forward-thinking company which offers extremely rewarding and stimulating work, involving a high degree of personal contact. Excellent opportunities and prospects. Contact: Margaret Stevens

Business Systems Consultants

South London based up to £7,000
Our client, one of the major computer manufacturers in the U.K., has opportunities for Business Systems Consultants to join the Customer Support group based in South London. Applicants should have five years' experience in data processing with the majority of that spent in the design and implementation of commercial applications. For the more senior positions candidates must have undertaken feasibility studies and been involved in defining user department requirements. The Company is looking for staff with maturity, sound business background, diplomacy and the ability to meet objectives with minimal supervision. Excellent salaries and career development. Retraining available. Contact: Jim Baker

Programmers

London up to £5,600
We have been retained by a large organisation to recruit several Applications Programmers to join the expanding development teams. The installation, which is based on ICL 2980's uses both communications and database techniques. Candidates should have a sound commercial programming background, preferably using COBOL on ICL hardware, and a willingness to be retrained on the 2900. The more junior positions require at least two years' experience and probably four or five for the senior vacancies. Knowledge of teleprocessing, real-time systems or database would be an advantage. This is an excellent opportunity to work with professionals in a sophisticated and original environment. Salaries are negotiable according to experience. Non-contributory pension scheme. Contact: Jim Baker

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Machines: Please specify model. **Applications**

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IBM others (specify) _____ ☐ Financial... ☐

ICL 1900/2900... ☐ Payroll... ☐

ICL others (specify) _____ ☐ Production control... ☐

Honeywell... ☐ Stock control... ☐

Univac... ☐ Scientific... ☐

Burroughs... ☐ Realtime... ☐

PDP... ☐ Software... ☐

Other mainframes (specify) _____ ☐ Database... ☐

Other mini-computers... ☐ Message switching... ☐

(specify) _____ ☐ Communications... ☐

_____ ☐ Data transmission... ☐

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_____ ☐ Teleprocessing... ☐

_____ ☐ MIS/CPA/PERT* ☐

_____ ☐ Magnetic tape ☐

_____ ☐ Disk ☐

_____ ☐ Others (specify) _____ ☐

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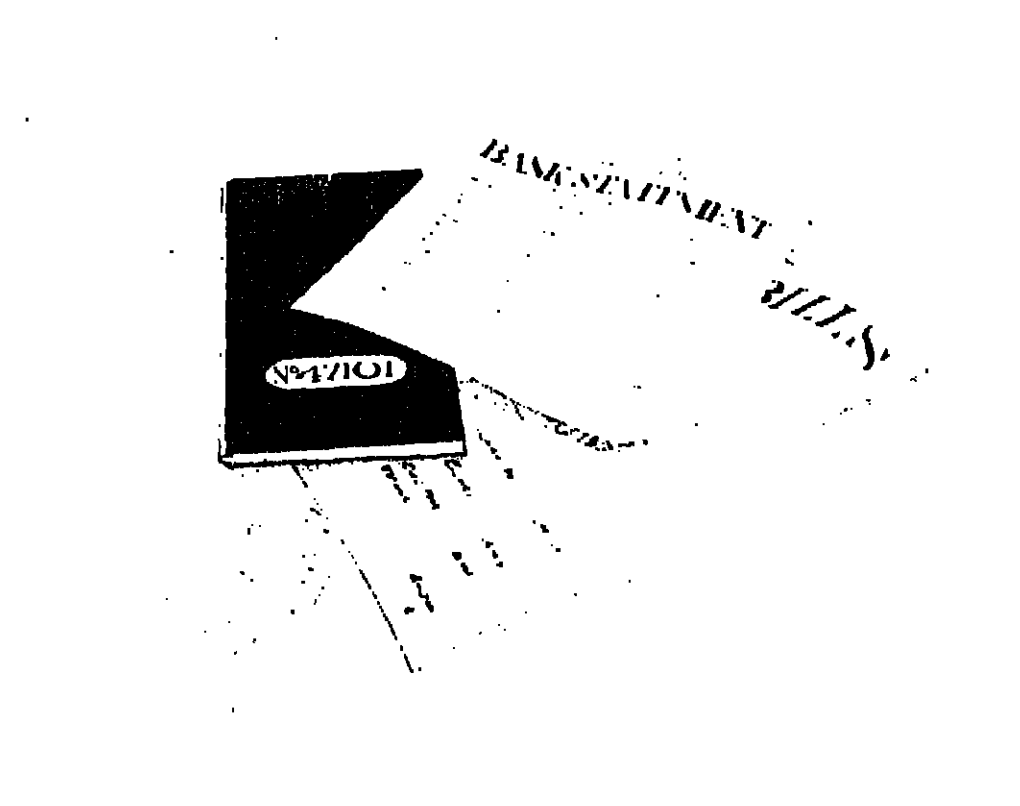
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Please contact Richard Kaluzynski or Sue Gillam on: 01-491 4706 or 01-439 3411

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For further details or advice on these and other U.K. and European Contracts still in the pipeline, call Sue Smyth, June Mogg or Jane Asbury NOW! on 01-491 4706 or 01-439 3411. All vacancies are open to both male and female applicants.



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Staff Services Division of BOC Datasolve Group and
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Honeywell, one of the most successful computer companies in the world has, as part of its internal restructuring process, created an important new area of operation to handle the marketing of Level 62 and 64 Systems. This is the General Systems Division.

We are now looking for a Divisional Systems Manager to join the management team. The successful man or woman will undoubtedly come from the forefront of the computer industry. A broad background of at least 10 years in the industry will be expected. As Systems Manager of this new Division, which has a substantial existing customer base, you will report directly to the Divisional Director.

Technical sophistication will play a secondary role to thorough business knowledge, understanding of maximising productivity, profit awareness and instinctive grasp of computer application.

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You will also bear functional responsibility for the Divisional Demonstration and Data Centre. Salary will be negotiable within five figures and will be at the top end of what the industry has to offer. This is in addition to an attractive benefits package which includes an executive level company car. The position will be based in Brentford. Please write, giving full career details, and salary expectations, to the Divisional Director, Jim Duncan, at Honeywell Information Systems, Great West Road, Brentford, Middlesex.



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Experienced systems and programming staff are required to install and develop the package. These staff will be based in Leicester or Reading but may be required to travel throughout the UK, Europe, North America and other overseas countries.

Opportunities with Safe Computing are for staff who are interested in applying their experience to achieve the effective use of small computers in a practical business environment.

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JOHN EVANS or JOHN GIBB
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London

Quota Earnings £16,000 + Car
(Base Salary up to £10,000)

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APPLICANTS should have a substantial and demonstrable track record in the sale of word processing systems, a high level of system competence and the ability to grow within a dynamic organisation. It is equally important that the person appointed is able to effectively contribute to the success of major negotiations.

To discuss this EXCITING OPPORTUNITY, applicants should write in complete confidence enclosing full career details quoting ref: CW082 or telephone David May, Advising Consultant on 01-486 8991.

Peteron Davidson Ltd
102 Blandford Street, London W1H 3HH Telephone 01-486 8991



SYSTEMS ANALYSTS

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COTSWOLDS OR THE
VALE OF THE WHITE
HORSE

Our client, who is situated in this beautiful part of the country, is expanding its Management Services Department and is looking for forward thinking young Analysts who are prepared to accept a challenge, work as part of a Business Analysts team and take project leader responsibility in the near future.

THE REQUIREMENTS:-

- Educated to at least 'A' Level standard.
- Outgoing personality— plenty of user contact.
- Self-motivated and able to accept responsibility and work on own initiative.
- A good commercial background and an appreciation and understanding of a business environment is essential.

THE REWARDS:-

- Salaries to over £5.5K plus relocation and regular salary reviews.
- Working with the latest and most sophisticated computer hardware undertaking a variety of projects.
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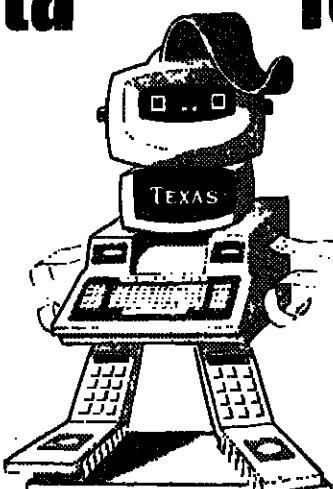
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Mini-Computer Sales Engineers

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You must have related sales, marketing or applications experience - the ideal would be a professional salesman with a proven track record in mini-computer sales. Ref. No. FY/307/1.



2
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Data Terminal Sales Engineers

BASED SLOUGH AND BEDFORD base salary £6500 on quota earnings c£9000 + 2 litre car + profit sharing to manage existing accounts and develop new business opportunities for our family of intelligent and non-intelligent devices, incorporating the most recent advances in innovative technology. A record of success in sales, marketing or applications in this fast growing sector of the market is essential. Ref. No. FY/307/2.

Candidates for these positions, men or women, ideally aged 25 to 40, should be educated to HNC or degree level. Ideally, you should live within a 50 mile radius of Slough or Bedford.

Excellent conditions of employment include profit sharing, free private hospital plan and generous assistance with re-location expenses, where appropriate.

Please write or telephone for an application form to Ann Stevens, Personnel Department, Texas Instruments Limited, Manton Lane, Bedford. Tel: Bedford 67466. Ext. 3442.

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COMPUTER CENTRE

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SHIFT LEADER

SENIOR COMPUTER OPERATOR

Applications are invited from Operations staff at various levels to work on the new Honeywell 6060, soon to be commissioned in the University on a day shift/back shift rota. The Universities of Strathclyde, Edinburgh and Glasgow are linked by 50Kb communications lines with Node Processors in each site. Computer systems available through the Network include local systems PCL 1804S, C.T.I. Front End Processor, Honeywell 6060S, L.C. 2 6850 and 2878 systems in Edinburgh and Glasgow, and I.B.M. systems at Newcastle.

Salary Scale (including all supplements)

CHIEF COMPUTER OPERATOR: £4095-£4812 per annum (several years' experience as shift leader required).

SHIFT LEADER: £3434-£4227 per annum (at least three years' experience in computer operations required).

SENIOR COMPUTER OPERATOR: £2808-£3434 per annum (at least two years' experience in computer operations required). Salary Scales (under review) are exclusive of shift payments.

For all positions, knowledge of Honeywell systems operating under G.C.O.S. will be an advantage.

Applications in writing, QUOTING REFERENCE CC 8, giving details of age, experience and qualifications, should be made to: The Personnel Officer, University of Strathclyde, Royal College Building, 204 George Street, Glasgow G1 1XW.

UNIVERSITY OF LEICESTER

COMPUTER LABORATORY SYSTEMS PROGRAMMER

Applications are invited for the post of Programmer within the Systems Programming Section of the Computer Laboratory. The work will include:

Implementation of the Midlands Universities Network (MIDNET)
Development of on-campus, inter-computer links
Development of system software on the central computer

The Laboratory has a CDC Cyber 72 operating under NOS AND PDP 11 min-computers providing front end and network facilities.

Applicants should possess a good degree, or equivalent, knowledge of data communications or peripheral interfacing would be an advantage. Salary will be within the range £3188-£4282 p.a. on the Computer Officer Scale, according to qualifications and experience. Further particulars and forms of application may be obtained from the Director, Computer Laboratory, The University, Leicester LE1 7RH.

EDITOR

required for an international monthly subscription magazine for Data Processing Management and Senior Computer Personnel. An in-depth knowledge of the computer industry and previous all-round journalistic experience, including editing, are essential requirements. Previous experience as an editor would be advantageous, and some time spent working in the computer industry, or with a computer user, would be desirable. Must be able to communicate effectively with industry people at all levels, control a small editorial department, and work closely with the publisher and advertisement manager.

Apply to: Peter Thomas, Publisher, IPC Electrical-Electronics Press Ltd., 78/80 Blackfriars Road, London SE1 8LU. Tel. 01-261 8111.

OPERATIONS MANAGER

CROYDON 370/148 c £6,500

Tylin, the computing services subsidiary of Tate & Lyle, wish to recruit an Operations Manager to control the Computer room and ancillary operations at their Croydon Data Centre. We offer excellent working conditions and an opportunity to join an expanding company and participate in its programme of commercial growth and technical innovation.

REQUIREMENTS:

- * Age 28-38 years
- * Minimum 7 years' computing experience
- * 3 years' management experience
- * Ability to train and develop staff
- * Sound technical knowledge of IBM 370 series operating under IRLS 'VS' and GRASP or POWER.

Preference will be given to applicants with experience of teleprocessing.

Application forms and further particulars are available from: Mrs. F. J. Phillips.



**TYLIN MANAGEMENT
SYSTEMS LIMITED**
Leon House, High Street, Croydon CR8 3NH
Telephone: 01-880 2323

SALES CONSULTANTS Computer Terminal Systems

Leeds & Manchester

Our client requires sophisticated Systems Analysts or Sales Consultants, with relevant experience, to market their newly developed Computer Terminal Systems to major Financial Houses. Those selected must be able to demonstrate a proven ability to meet with Senior Executives and will preferably have a background in Banking or a similar field. The positions carry a high degree of responsibility as those appointed will be required to market the total concept. Ideally the candidates will be aged 28 to 45 and have a degree qualification in a related subject. The Company, an acknowledged leader in computer technology, offers an extremely attractive remuneration package together with excellent opportunities and incentives for permanent career advancement. If you are interested please contact Peter Findlay on 01-584-8606 or 01-584-8478 or write Thurloe Executive, 30 Thurloe Place, London, SW7 2HO, quoting ref. A0189 (AGY).

Thurloe Executive
30 Thurloe Place, London, SW7 2HO
01-584-8478



Business Systems Analyst

C. E. Heath & Co. (Agencies) Ltd.

circa £5,000

SOUTHEND-ON-SEA

C. E. Heath & Co. (Agencies) Ltd., a subsidiary of the C. E. Heath International Insurance Group, is a leading and expanding Underwriting and Managing Agency in the London Insurance Market.

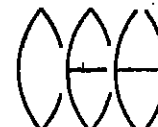
The Agencies Company recognises the importance of efficient systems and maintains a Management Services Department with responsibility for the continual development of the Company's extensive computer applications and modern administrative procedures. In order to further strengthen the scope of Management Services, the department has been restructured into two areas, Organisation & Methods and Computer Systems, and as a result the Company is now seeking a Business Systems Analyst to co-ordinate the research, feasibility and design work in the Computer Systems area. (Systems implementation and computer operations are currently provided on a bureau basis by the data processing facility of the C. E. Heath Group.)

The person appointed will report to the Management Services Manager of the Agencies Company and the position will be located in the administrative offices of the Company at Southend-on-Sea.

Applicants for this position should be educated to a minimum of 'A' level standard and possess experience in the computer systems field, ideally within the Insurance Industry.

In addition to salary terms, conditions of employment include a contracted out non-contributory pension scheme, subsidised luncheons and free life assurance. A system of flexible working hours on a 35 hour week basis is operated.

Please telephone for an application form to:



Mr. P. F. NERRETER, Personnel Officer,

C.E. Heath & Co. Ltd.

Colman House, 61/71, Victoria Avenue,
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Tel: Southend-on-Sea (0702) 49431

SYSTEMS

PROGRAMMER

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We have a vacancy for a systems expert with:

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- 2-3 years' assembler experience
- Knowledge of FORTRAN desirable

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We need someone with 2-3 years' FORTRAN experience to develop CAD and graphics application programs. You should have completed at least one major programming project. A degree in engineering would be an advantage but is not essential.

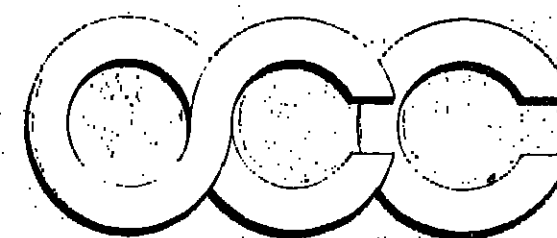
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Telephone: (0805) 38188**

GENESYS



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Systems Analysts

Tehran

c £14,000 (tax free)

- + accommodation
- + settling-in allowance
- + medical insurance, etc.

Manufacturing and Accounting Applications

Our client, a major multi-million dollar US services corporation with worldwide activities in electrical contracting, heavy engineering, aviation support, etc., has recently been awarded a large DP development project in TEHRAN. Applications are in the logistics management area covering Financial, Materials and Maintenance management systems associated with the servicing of aircraft. The installation consists of dual Honeywell 6060s utilising GCOS, IDS and TDS, with some MDQS and TSOS. Programming is mainly in COBOL and on-line program development, data input and database enquiry are in operation.

At this stage, we wish to recruit a considerable number of Systems Analysts to commence employment during June and July 1978. Candidates for these appointments should have a minimum of 3-4 years' systems analysis/design experience, preferably including some involvement with database applications, in a commercial or manufacturing environment. They must be capable of interfacing with user organisations to determine systems requirements as well as designing and writing systems and program specifications. Applications experience should be in one or more of the following areas:

Financial Management

- General Ledger
- Cost Accounting
- Accounts Payable
- Accounts Receivable

Materials Management

- Work-in-Progress
- Stock Status reporting
- Inventory Control
- Shipment Control

Maintenance Management

- Demand Analysis
- Quality assurance
- Workload Planning
- Maintenance scheduling

Positions will be offered on a 1 year re-negotiable contract basis and the company offers an extremely attractive package which includes an excellent tax free salary, free accommodation and and of contract bonus, together with the many other fringe benefits associated with a large US corporation.

The client will be conducting interviews in the UK in early June. These interviews normally take place in London but local and evening interviews can be arranged if necessary.

If you are interested in these positions or wish to discuss them further, please call Roger Allington on 01-242 9356 (day) or Berkhamstead (04427) 2299 (evenings/weekends) as soon as possible. Ref. 3901CW/RA.



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1st year c £5,000 + CAR

If you have a background in Analysis or Programming and would now like to use your data processing experience to commence a career in the front line of industry our client offers an excellent opportunity to do so. The Company, a leading service bureau, offers a wide range of services to all sectors of industry. The person appointed will initially undergo a period of formal theoretical training followed by in-the-field practical experience. Candidates should have a good understanding of data processing most likely gained in programming or analysis roles. They should enjoy dealing with people and any experience of client oriented situations would be a distinct advantage. The Company offers excellent conditions of employment and first class career prospects to the successful applicant who can expect an initial salary of c £5,000 in the first year rising to an estimated salary of £8,000 in the second year of operation. A company car is provided.

Ref. N1/2808

24-hr. answering service
Please telephone for a confidential discussion or write to:
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SYSTEMS ANALYSTS

Join a winning team.

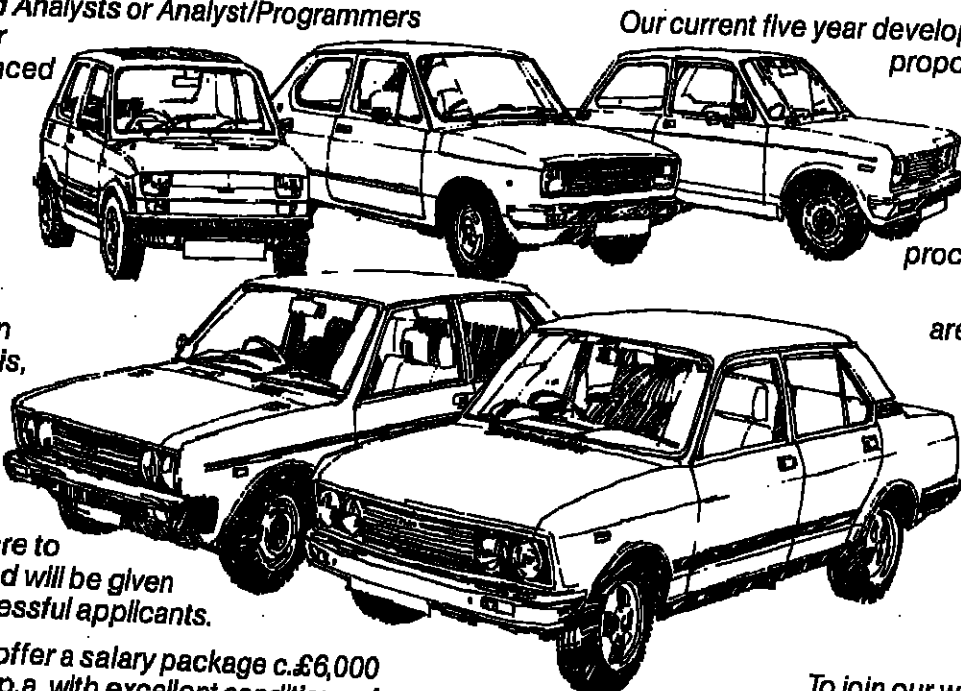
Middlesex... c.£6,000

We are seeking experienced Analysts or Analyst/Programmers keen to enhance their career by developing several advanced on-line and real-time applications using the latest DEC and IBM hardware.

Applicants should have a minimum of three years' commercial systems experience, gained in an installation with high standards of analysis, design and documentation. Knowledge of commercial applications is of prime importance. Technical training in the systems

software to be used will be given to successful applicants.

We offer a salary package c.£6,000 p.a. with excellent conditions of employment at our Brentford computer centre, including a subsidised canteen, pension scheme, generous car purchase facilities and flexitime.



Our current five year development plan includes far-sighted proposals to permit both the efficient distribution of our popular, award winning cars throughout the U.K. and also support our network of dealers with plentiful spares and immediate processing of orders and enquiries.

To satisfy this requirement we are installing PDP 11 equipment in our central warehouse and Brentford computer centre: These will be linked to our IBM 370/138 carrying out on-line and real-time functions. These systems will be supporting first-class products with an automated sales and support system second to none.

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Tel: 01-353 0981 (24 hours)



MANAGEMENT & EXECUTIVE SELECTION

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WEST LONDON

£5-9K negotiable

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THE JOB As a member of a closely integrated and sociable team of professionals, you will be called upon to use all your skills — programming, systems design and analysis, management and general consultancy, as well as learning new specific skills with the assistance of your colleagues. The main job satisfaction is gained from getting work ready within an agreed cost and time scale. There is a considerable amount of customer involvement and everyone is expected to participate in the sales effort of the company. People are given all the responsibility they can handle and there are unrivalled opportunities for promotion.

THE REQUIREMENTS The minimum requirements for this job are two years' programming preferably in COBOL and/or BASIC, the analysis and design of at least one system, sound commercial systems background as well as the ability to mix with customers and sales staff and manage both projects and people. It is important that staff are mobile although most travel will be local. Otherwise there are no restrictions — the most important requirement is a good business attitude.

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MANAGEMENT & EXECUTIVE SELECTION

Malmesbury, Wiltshire

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The Company's Advanced Development Division is a forward looking design group, exploiting L.S.I. technology in the application of stored programmed control to telephone switching and also the development of other advanced products for the telecommunications industry in both the Switching and Sub-Apparatus areas. The Division is situated at the Company's modern new headquarters in Malmesbury, Wiltshire.

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Required to work in close collaboration with L.S.I. circuit design engineers to produce new microprocessor based products. Applications are invited from Analysts/Programmers, preferably with Intel 8080/85 and mini-computer experience, in the electronics industry. A degree in a relevant discipline is preferred. The evidence of the completion of real time systems properly documented, using Coral or Assembler language together with at least 5 years experience in this field is more important. (Ref: ADD/W/T)

SCIENTIFIC PROGRAMMERS

Required to work on the development of software tools for CAD design automation, automatic testing and advanced graphics systems applicable to the realisation of VLSI circuit design. Successful applicants will be working on computer types SEL 32

and DEC 2050. Vacancies exist at both Intermediate and Senior levels. Applications are invited from self motivated and creative people with experience of both Electronics design and Fortran programming. The successful applicant will have a degree in Electronics or Computer Science (Ref: ADD/R/B)

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For further information, please contact the Personnel Department on Malmesbury 2121 or write with full details of education and career to date (including the appropriate references) to the Recruitment Officer, Pye TMC Limited, Swindon Road, Malmesbury, Wiltshire, SN16 5AA.



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For more detailed information please contact Ted Shonbridge on Blackhill 03344 24842 extension 2046, or write

to him at ICL, Foxglove Road, Blackhill, Berks RG1 2 4SN. Please quote reference CWH/RL

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are seeking a

SENIOR COMPUTER OPERATOR

In their Systems Section at Southampton to operate 19011 under George II and Communications Manager. Applicants must have a minimum of 2 years' experience of ICL 1800 equipment.

Hours 0800 to 1800 and 1400 to 2200, alternating weekly with requirement for alternate Saturday morning working 4 weeks' annual leave plus LVs. Salary negotiable depending on past experience.

Applications with full details of employment to date to

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MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

OPPORTUNITIES IN SOUTH MIDDLESEX

Our clients, a well-established engineering company, are planning to develop a number of new systems over the next four years. The proposed development will mainly be in Production Control systems but also includes some commercial and financial systems. This considerable expansion programme will necessitate upgrading their existing ICL 2900 installation to cater for both on-line and batch applications. It also means the company needs to recruit experienced analysts and programmers so if you are looking for good prospects, an attractive salary and can fulfil the basic requirements outlined below, contact Tony McGrath.

SYSTEMS ANALS.

to £7k

SNR. PROGS./PROGS.

to £6k

- Good experience of Prod. Control Systems in an engineering environment.
- or — good business experience in industry.
- Mature personality and good communicator.
- Programming background not necessary.
- ICL background preferred.

- Good COBOL experience, preferably with an ICL installation.
- Must be flexible, adaptable and willing to work in a small team.
- Probable age range early to late 20's.
- Must be prepared to handle all programming requirements including involvement with software and utilities.

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MANAGEMENT & EXECUTIVE SELECTION

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— SYSTEMS**

Our clients offer this outstanding opportunity to a suitably qualified person to join their D.P. Division and to contribute their skills developing new Systems for locations in the U.K. and overseas.

If you possess experience in some or all of the following areas, then this could be for you:

- 1) A Programming background in Cobol/Assembler
- 2) Up to three years' Systems experience, preferably gained from working in a Financial environment
- 3) Experience in using CICS/VS and DL1 would prove advantageous
- 4) Must possess good communicating ability and be able to work well with user management

TELEPHONE OR WRITE TO US NOW TO ARRANGE FOR
IMMEDIATE INTERVIEW IN LONDON OR THE SOUTH

FACULTY OF SOCIAL STUDIES

PROGRAMMER III

The Data Processing Unit in the Faculty of Social Studies requires a Programmer III to join a team of four programmers. The Unit has an ICL 4.72 computer. The work is mainly of a statistical nature in the creation and analysis of data banks and preference will be given to applicants with experience of programming at a high level language and the use of statistical packages. Applicants must have a university degree in a relevant subject but previous computing experience is not necessary as training will be given.

Salary according to qualifications and experience will be within the range £3066-£3504 p.a.

Applications, stating the names of two referees, should be sent to Miss Susan Watson, Administrative Assistant, Appointments, University of Exeter, EXETER EX4 4JL by 8 June 1978. Please quote reference No. 848.

MEDICAL COMPUTING & STATISTICS UNIT

COMPUTING

OFFICER/PROGRAMMER

Required by the MEDICAL COMPUTING AND STATISTICS Unit for a medical research project. The role is mainly that of a research assistant. The applicant will assist with the computer processing of the project results, making a close contact with doctors and statisticians. A high degree of personal involvement in the whole project will be expected. A degree, or equivalent qualifications or training in either data processing, programming or statistics and familiarity with medical records would be an advantage. Programming experience, especially in handling a medical data base, would be an advantage. The post is permanent and full-time. Salary on scale £2500-£3175 (September 1981). Salary on scale £2500-£3175. The appointment will be at the lower end of the scale. Closing date for applications 21st May 1978. Further particulars and application forms are available from:

Medical Computing & Statistics Unit, Edinburgh University, Edinburgh. Please quote reference 205.

SITUATION WANTED

Male, Nationality German. Seeks new surroundings in Great Britain. Data System Developer. Age 32 years. University Degree. 11 years' experience in EDP, EDP Organisation (Software). Present position EDP Manager.

Klaus Mathias Mueller, 12 Kierforn Weg, 5908 Nienardresseln Dorf, W. Germany.

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BASILDON

c £5,000

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- ★ IBM 370/158
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If your background includes around two years' COBOL programming experience and you would like to know more about the position ring now quoting reference E1/2505.

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The successful applicant will be competent in Cobol Programming. Experience of ICL software would be a distinct advantage. Opportunity will be given to widen your data processing knowledge working in an environment of high fashion at our Headquarters close to both Oxford Circus and Bond Street undergrounds.

The salary will be commensurate with the responsibility that the job carries. We offer fringe benefits which include a non-contributory pension scheme, luncheon vouchers, generous staff discount and season ticket loans.

Please phone Rosemary Johnson on 01-463 0861 or write to: Ravel Shoes, 105 New Bond Street, London, W.1.

Ravel

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Our client wishes to employ the following staff on a renewable six-month contract basis.

I.M.S. Programmers

**Honeywell Bull
Programmers**

**Burroughs
Programmers**

Our client will pay 35'D Marks per hour (around £9) and travelling to and from contract. Assistance with finding accommodation will be given.

Knowledge of a European language, though not a requirement, would obviously be an advantage. Please write to Terence P. Crouch, quoting reference 892, or telephone him on 0534 74665.

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by Philip Morris
an

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Planned developments in our data processing department have created an opportunity for an ambitious Analyst/Programmer to take full responsibility for the development of a range of commercial applications.

Our installation consists of two IBM System/32s to be upgraded to a System/34 in June 1979. Upon completion of the batch applications towards the end of next year work will be concentrated on development of remote data capture and enquiry systems. The successful applicant will have a sound experience of RPG II and IBM hardware. An understanding of Cobol would be an advantage.

This company offers an excellent career path for the enterprising applicant including excellent pension, free cigarettes, staggered hours, and a salary that matches our optimism and rapid growth.

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Joan Marie Pitt, Philip Morris Ltd., Great West House, Great West Road, Brentford, Middx. 01-568 4191

ANALYSTS & PROGRAMMERS

The Rolls-Royce Reputation

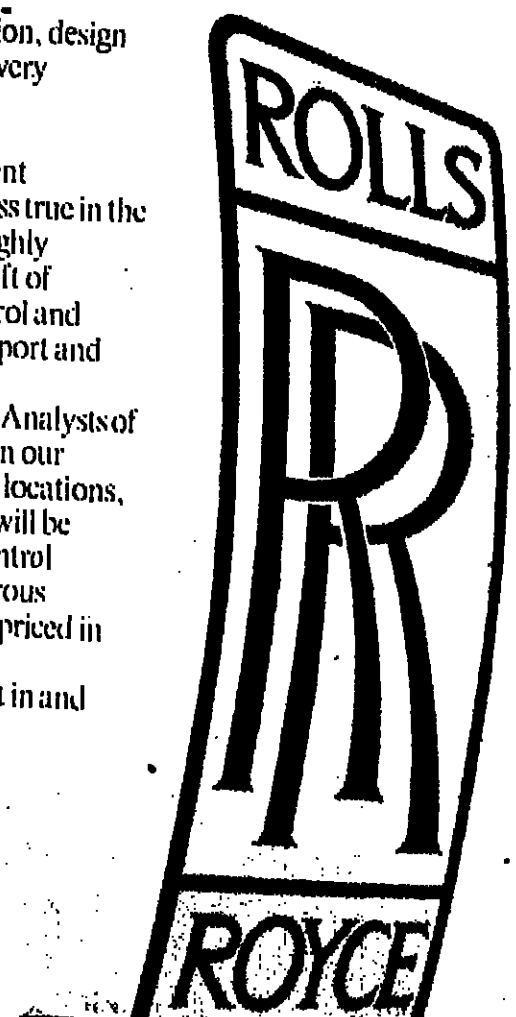
The Rolls-Royce reputation is an amalgam of technical innovation, design and manufacturing excellence plus adherence to high standards in every sphere of operation.

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As part of our development plans we now offer Programmers and Analysts of various specialisations and levels of experience the opportunity to join our business and technical systems teams working at most Aero Division locations, which include Bristol, Derby, Coventry, Watford and Glasgow. You will be working with IBM system 370, Cyber 74 and DEC 10 computers. Control Software used includes MVS, SVS, TSO, IMS, DOS, CICS. A generous relocation package is available and housing is considered reasonably priced in most areas mentioned.

If you're concerned with your reputation, here is a check list. Fill it in and return it to us Freepost - we'll be in touch.

Add it to yours



مكتبة من الكتب

Just tick your amount of experience in the job categories listed. Indicate the mainframes and systems you have worked under and your preferred locations.

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13-15	16-18	GENERAL USER			

LOCATIONS PREFERRED:

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NAME (M/Ms) _____

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TEL. NO. DAY (EVENING) _____

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ROLLS-ROYCE AERO DIVISION

ANALYSIS USING ADVANCED TECHNIQUES

LONDON W1

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SYSTEMS ANALYST
up to £6250

With upwards of one year's practical analysis experience (on any mainframe and on any non-scientific applications). The successful candidate is unlikely to have less than three years computing experience in all, should have a sound educational background, and be capable of leading a small team if required. (Ref. 884W)

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up to £5100

This is an opportunity for a well-educated Programmer or Analyst/Programmer with around three years' experience on any mainframe to progress to systems analysis work. Alternatively, our clients would consider a recent GRADUATE with a good degree (ideally computer science), at an appropriately lower salary level. (Ref. 880W).

The successful candidates will be working in small teams on an extensive schedule of new development work at a major West End installation. Appropriate training in advanced techniques such as database and communications will be given, and career prospects are good, in a well organised, expanding installation, using the latest mainframe equipment and modern operating systems. COBOL is the main language.

We would like to tell you more about these first class career openings. Please ring us in confidence for an initial exchange of information, quoting the appropriate reference. Alternatively, leave a message on our answering machine after hours or write briefly.



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52-53 Margaret Street
London W1N 7FF

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Salary Negotiable + Fringe Benefits

Our earlier advertisements attracted some key people to join our projects in Hampshire but we have additional opportunities for the right people now.

We are a life insurance and unit trust Company and we are growing fast - we need sophisticated systems to support our continued expansion. We are committed to developing an integrated insurance system to replace all existing systems using modern technology such as database, real-time on-line facilities via VDU's etc. on our new Burroughs B3800 system.

We can offer a stimulating career and first-class rewards to those who can help us in our ambitious plans. We have opportunities now in software development, systems analysis and in application programming. We are looking in particular for experience in the following fields -

Real-time applications
Database technology
Burroughs Medium systems

We would like to hear from you. Those of you who join us will enjoy a comprehensive package including competitive salary, plus mortgage subsidy facilities, non-contributory pension, life insurance and permanent health schemes. Generous relocation expenses will be available for those who move to join us.

Telephone Andover 82188 Ext. 207 or write now for an application form to:

TSB Trust Company Limited,
White Bear House, 21 Chantry Way,
Andover, Hants. SP10 1PQ.

TSB

COMPUTER PERSONNEL APPOINTMENTS LTD.
Career Specialists and Consultants for
D.P. MANAGERS, SYSTEMS ANALYSTS, PROGRAMMERS AND OPERATORS
Midlands, Northern Counties and Scotland
For application forms apply to:
88 New Street, Birmingham B2 4QU, 021-643 0951
or Tel 01-723 9334

SYSTEMS ANALYSTS & PROGRAMMERS

Come to an Open Evening at Television Centre on Wednesday, 31st May, at 6.30pm.



The BBC would like to invite business orientated Systems Analysts, and also Programmers, to an Open Evening on Wednesday, 31st May at 6.30pm. Meet us at Television Centre, Wood Lane, Shepherd's Bush (opposite White City Central Line Station). The purpose of the visit is to explain the role of computers in Broadcasting today, and includes a brief tour of Television Centre.

Our application areas include aids to Production and Transmission Planning, Management Information

Systems, and Financial and Stock Control Systems.

We think you'll find the visit extremely interesting, particularly if you're a Systems Analyst concerned about solving user problems, with 3/5 years experience; or a Programmer with 2/3 years experience with ICL equipment and writing COBOL programs in a business environment.

However, if you can't come along, write or telephone, Appointments Dept., BBC, London W1A 1AA, quoting reference no 78.G.1307CW. Tel: 01-580 4468 Ext: 4619.

BBC

NORTH WEST THAMES REGIONAL HEALTH AUTHORITY REGIONAL COMPUTER SERVICE

COMPUTER INSTALLATION MANAGER (Scale 23)

(Male or Female)

SALARY SCALE: £8,700-£8,047

PER ANNUM

(INCLUDING LONDON WEIGHTING AND SUPPLEMENTS)

The successful candidate will be accountable to the Regional Computing Services Officer for the general professional standards of staff, as well as the overall control and co-ordination of computer operations in the Region. He/she will be responsible for the maintenance and security of the computer premises, precincts, equipment and records, and for the satisfactory functioning of secretarial and all administrative matters. A large ICL 1904S computer with EDS 80 discs is installed and has been in regular use for some years. Applicants should have a sound managerial ability. Applications from and further particulars from the Regional Personnel Officer, North West Thames Regional Health Authority, 48, Earlscourt Terrace, London W2 3QN (Telephone No. 01-862 8011 Ext. No. 281), returnable by 10th June 1978 quoting reference number 304/CW/23/A. Applicants from outside the service start at the minimum of the scale.

DO YOU TALK OUR LANGUAGE?

An exciting opportunity has arisen for an Analyst/Programmer to be involved in the development of an on-line system.

Having successfully operated with an IBM System/3 for several years, we are now installing a much larger machine to serve 17 VDUs.

The Analyst/Programmer will work closely with the d.p. manager in the design specification of the new system; in directing the work of junior programmers; and in liaising with new user departments.

Our language is RPG2; but other relevant high-level language experience will be considered.

We are the country's leading independent poultry processors and employ some 1,100 people in the East Midlands.

Our Lincolnshire base is in a pleasant, low cost rural housing area. We can offer responsibility and job satisfaction in a progressive, expanding company at a salary in the range of £4,500-£5,000. Other large company benefits apply, including relocation assistance.

Please write, giving full details, or telephone for application form to:-

H. J. SANDERS
COMPANY PERSONNEL MANAGER
G. W. PADLEY LTD., ANWICK
SLEAFORD, Lincs
TEL (STD 0528) 832661



TEHRAN

UNIVAC BANKING \$30,000 + Accommodation

A 2-year contract in TEHRAN then back to work for one of the UK's top management consultancies. Full career development on completion of contract.

DMS/TIP/CMS CONSULTANT

To advise on the use of these 1100 software components in the design of on-line database banking systems. Total familiarity of their software properties and applications interfaces required. Banking experience NOT required.

CONSULTANT ANALYST

To advise on on-line banking systems in a large Univac 1100 environment. Plenty of "hands-on" duties. Banking experience essential.

REF RW 21/3

REAL-TIME SOFTWARE DEVELOPMENT

Industrial Applications of Real-time Minis — Home Counties

This company is a world leader in real-time process control systems. Increasing sales give rise to the following staff requirements in the Software Development Department.

TEAM LEADER (Interactive Languages)

£7-£9 K (+ Reloc)

This is a senior appointment leading a team developing interactive language compilers.

SOFTWARE DESIGNERS £4-7 K (+ Reloc)

A number of attractive vacancies exist for software designers with various levels of experience in the following areas:

- Micro-processors
- Operating Systems
- Process Control Applications

This is a first-class opportunity to exercise your skills with a growing organisation in a rapidly expanding market.

To find out more, Phone TONY BAKER on 01-499 4501.

REF RW 21/4

OEM PERIPHERALS/TERMINALS

Our client is a British major in the manufacture and sale of computer peripheral and terminal equipment. They have a large and growing customer base, both at home and abroad, to whom they supply competitive products of the most up-to-date design. The company has been trading for several years and has consequently established a sound commercial base.

Profitable business to date enables the company to double its turnover (currently £12m) every 5 years. To meet and surpass this growth rate the management has decided to enlarge the marketing force by creating exciting career openings, detailed below.

To discuss these opportunities, please telephone TONY BAKER on 01-499 4501, or write to him at the address below, quoting the appropriate reference number.

SALES ENGINEERS

Vacancies now exist for three sales engineers to join the existing sales force in Britain. Based in Northern England and the London area, two of the sales executives appointed will manage and develop customers and prospects in a defined territory. They will sell the complete product range, and to do this successfully, will need to have a successful track record in sales, coupled with an engineering background or similar. They will, of course, be disciplined and self-reliant individuals.

The third executive will be Head Office based (West of London) and will handle general enquiries. This appointment might suit a young individual with an engineering background wanting to make his/her entrée into sales.

There is an attractive benefits package, including a generous commission scheme, a company car and a base salary of £8-£7,000. Realistic earnings on quota will be in the range

£9,000 - £11,000

REF RW 21/1

APPLICATIONS ENGINEERS (Sales Support)

To support the substantial sales effort of the sales force, the management has decided to engage two further SALES SUPPORT ENGINEERS to support customers and salesmen in both pre- and post-sales situations.

These positions call for youngish people with an engineering (or similar) background, who have the desire and capability to work in a front-line capacity. The engineers are called upon to provide a technical back-up to the sales executives to optimise their success, and to ensure a high level of customer satisfaction. Candidates must therefore be articulate and self-disciplined as well as possessing a high level of technical competence. (If you can demonstrate practical managerial talent, then it is possible that this could be put to good use from the outset).

£5,000-£5,500 + Car

(c £6,500 + Car

for a Manager

REF RW 21/2

hutchinson-scoggins recruitment
10 Dover Street London W1X 3PH
Telephone 01-499 4501

Successful candidates will be flown out, at CDC expense, for a 1 week exploratory visit.

Control Data Corporation has been established in South Africa for 14 years. A reputation for stability and growth has been won principally because specialists have been carefully integrated so that each can develop whilst positively contributing. CDC is situated in Sandton City, one of Johannesburg's most prestigious office blocks, in the pleasant northern suburbs. Luxury housing plus excellent shopping and social facilities are on the door-step.

The following positions offer negotiable salaries in the range R16 000 to R18 000 per annum plus extensive benefits. A guaranteed air fare valid after 3 years service is also provided should any candidate prefer not to accept a permanent position. In addition all air fares and goods shipment will be paid. A generous settling in allowance will be provided.

Systems Software Support Cyber mainframes

Duties involve the installation and maintenance of operating systems on large dual Cyber installations. This will include liaison with and the training of user software teams.

Candidates should have at least 3 years experience with CDC operating systems such as KRONOS, SCOPE, NOS and NOSBE. A high degree of technical competence is obviously required as well as the ability to carry substantial responsibility.

Communications Software Analyst

We have installed dual Cyber mainframes that have additional communications facilities for a user who has unique and diverse requirements. The challenge will be to install and maintain the operating system whilst ensuring that all the customer's software needs are catered for.

Candidates should have at least 3 to 4 years experience in the maintenance of an operating system (or part thereof) coupled with exposure to data communications software that has been interfaced with a host system.

Senior Analyst Data Base Systems

This person will perform a liaison role with a major user in addition to handling the interface with CDC software groups in the USA.

Candidates must have a wide and deep knowledge of data base techniques, not necessarily on CDC mainframes.

Andy Lawrence, Personnel Manager South Africa, will be interviewing on the 7th, 8th and 9th of June in London.

Please write to him submitting full career and personal details c/o Control Data Limited, 78 Wells Street, London W1. Please send your resumé by express post.



CONTROL DATA

MORE THAN A COMPUTER COMPANY

programmers/senior programmers Sheffield/Huddersfield.

Salaries — programmer c £4000; senior programmer c £5000
Due to our success and rapid growth, we are looking to recruit programmers and senior programmers for our Sheffield and Huddersfield centres.

The successful candidates will be competent programmers with two years plus ICL 1900/2900 experience (three years for the senior grade). Preference will be given to applicants with COBOL and TABN/ELT6 experience. At the senior grade team leadership is indicated. If you consider that you have the necessary qualifications and would like to work in a challenging and rewarding environment, ring me at 0742 730406 or send me brief career details.

Malcolm Needham, Software Support Manager, Hoskyns Systems Ltd, Thos. W. Ward Building, Savile Street, Sheffield, S4 7UL.

hoskyns

A systems company with over 700 professional staff
Established in 1965 and 14 years of continuous growth.

UCA HAVE THE BEST JOBS!

OPERATORS / SEN. OPERATORS To £4,300 inc.

MID HAMPSHIRE
A major commercial ICL G11 user is expanding its present large installation to the 'new-range' ICL equipment and requires additional operating staff who will get the opportunity of working on the latest computers. Their perks include relocation expenses and subsidised Restaurant, etc. CW21/1 Patricia

SNR. OPS./OPERATORS £4000 to £5500 inc.

N LONDON
A major IBM 370/OS user is offering really excellent perks including high salary and paid overtime plus paid removal expenses. You must have a minimum of 1 year's OS experience though. CW21/2 Patricia

SHIFT LEADER £4,500 inc.

E LONDON
If you are looking for career progression with very good promotional prospects then apply now. Excellent IBM OS/VS installation with company benefits like 4 weeks' holidays. Non C.P.S. and a subsidised canteen. CW21/3 Patricia

HARDWARE TECHNICIAN C. £4,700

W SUSSEX
Applicants are required to control the Hardware side of this major IBM & ITEL installation. They will provide control over the CPU, discs, tapes and standby generator, etc. The installation belongs to a major commercial company with three other large IBM computers in the UK. There is paid overtime on top of this days only job. Relocation expenses paid plus other large company perks. CW21/4 Michael

JUNIOR PROGRAMMERS £3,000 to £4,300

SE ENGLAND
You have only 1 year's commercial experience? Then you are in front demand. We have a large selection of first-rate companies who need people like you. Some offer mortgage assistance to the right candidates after short period with them. CW21/5 Annette

MINICOMPUTER PROGRAMMERS £4,000 to £7,250

LONDON & HOME COUNTIES
If you have experience in ASSEMBLER or micro-code or communications for at least 1 1/2 years then a whole exciting field is open to you. We now have opportunities in SW, NW or W London, Surrey, Dorset and Hertfordshire for competent people in this rewarding field. The future is definitely going to be with the MINI-computer Professional. Telephone for details. CW21/6 Michael

SYSTEMS PROGRAMMER £7,600

CROYDON
You're lucky. You could be working on one of the first 3033 installations in the country, shortly arriving. At present this major industrial user has the latest IBM 370 CICS/VS, VTAM, CMS installation. They require a systems programmer with good T.P. experience that will only benefit from a job on the latest equipment. CW21/7 Annette

FREELANCE PROGRAMMERS to £260 p.w.

MINI-ASSEMBLER ESSEX 3 MONTHS
PL/1 OS HERTS 3 MONTHS
H66/40 COBOL GLOUCESTER 3 MONTHS +
PDP/8 DIAGNOSTIC HERTS 3 MONTHS
INTEL ASSEMBLER ESSEX 10 MONTHS

Apply NOW for the latest vacancies. IBM, HONEYWELL, DEC & ICL programmers welcome. Earn a summer holiday paid break plus an attendance BONUS. Ask for the Contracts Officer on 01-995 5485

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

ON-LINE TO AMERICA

ANALYST/PROGRAMMERS

SOUTH LONDON

c £5,300

A minimum of 18 MONTHS' COBOL experience, gained on any machine, could secure you a rewarding future within the expanding data processing department of a major international organisation. The Company operates an IBM 370/168 under OS in Texas with links to the U.K. and Europe. On-line processing and systems development are used extensively, offering the successful candidates the opportunity to be trained and enhance their career in this area.

The persons appointed will program, test and implement systems with the minimum of supervision. This will entail close User contact, particularly during the latter stages of the project. Career prospects are excellent and a limited amount of travel will be available.

Located in modern, air-conditioned offices, the company's terms of employment include an annual bonus, a non-contributory pension scheme and paid overtime.

Ref. S1/2505

24-hour answering service

Please telephone for a confidential
discussion or write to:
30 Fleet Street, London EC4Y 1AA

01-353 0981

Edmund Howard's Client Album

PROGRAMMERS

SNR. PROGRAMMERS
ANALYST/PROGRAMMERSEUROPE
& UKSalaries to £16,000
Salaried to £10,000

Many of today's most sophisticated scientific systems are being developed on mini computers and microprocessors. This development has, in turn, created a demand for specialist expertise of a very high order. It is therefore essential that candidates should hold a degree in a scientific discipline coupled with at least two years' experience of real-time computer systems. A working knowledge of either CORAL ASSEMBLER and/or FORTRAN is required.

Projects range from Space, Avionics, Defence and Military systems through to Data communications, Computer Networks and message switching systems. Computer specialists with first hand experience of scientific systems will welcome the opportunity to participate in one of the most creative modern areas of modern Data Processing. For further details please quote CW185.

TECHNICAL AUTHOR
HERTS. & BERKS

£6,500 +

A leading computer equipment manufacturer is currently seeking a Technical Writer with flair and imagination to work in close association with the product development and software design teams. It is essential that candidates have had some previous experience of technical specifications and software manuals. For further details please quote CW188.

BASIC SOFTWARE DEVELOPMENT
LONDON, HOME COUNTIES & THE SOUTHGraduates
Programmers
Project Leaders£3,000-£4,500
£5,500-£7,000
£6,000-£8,500

We have a wide and varied selection of software vacancies throughout the south. All our work involves the development and software design of systems. If you are experienced in any of the following areas we would be pleased to hear from you: Operating Systems, Transaction Processing, Compilers, DBMS and Software products in general. For further details please quote CW186.

COBOL & ASSEMBLER
PROGRAMMERS

S.W. LONDON/SURREY

Salaries to £6,500

A major financial organisation is presently seeking experienced programmers to participate in the latest stages of expansion involving the design and development of a wide variety of new systems. Applications programmers should possess a thorough knowledge of COBOL preferably gained in an IBM based environment. Systems programmers should be thoroughly conversant with ASSEMBLER. A minimum of two years' programming experience is essential. These positions, offering excellent career progression, offer security and job satisfaction to progressive career minded individuals. For further details please quote CW189.

PROGRAMMERS, CONSULTANTS
HOLLAND

Salaries to £16,000 +

A leading independent Dutch Consultancy with a highly impressive track record in commercial data processing is currently recruiting experienced computer personnel to work in Holland on either short or long term assignments. Requirements are broadly based and cover financial/accounting/insurance systems on a wide variety of hardware including IBM, ICL, Honeywell, Burroughs, Univac, etc. These appointments will appeal especially to those wishing to broaden their experience in a very competitive area, demanding as it does a high level of dedication and professionalism. For further details please quote CW187.

FREELANCE
NATIONWIDE

A number of our clients often require contract or freelance personnel for short/long term assignments. So if you are between jobs or just finishing your current contract it would certainly be worth while getting in touch with us. For further details please quote CW190.

Edmund Howard & Partners

Computer Personnel Consultants

1 Brighton Road, Surbiton, Surrey. Telephone 01-899 9183
38 Grafton Street, Dublin. Telephone 775 756

PL1 PROGRAMMERS

City

£4000-£6000

If you have two years commercial experience in a large IBM installation our clients would be very interested in hearing from you. They are in the process of installing a second 370/158 and their future plans include an increasing use of IDMS and the extension of their current TP network. Any CICS and/or Database experience would be a distinct advantage. The company offers an attractive starting salary, excellent conditions of employment and plenty of opportunity for rapid career advancement.

Reference JC 21/1

FORTRAN PROGRAMMERS

London

£4000-£6500

A major engineering company located just south of the river near London Bridge Station require an experienced Fortran programmer. The suitable applicant should have a degree in Applied Mathematics or Engineering and at least two years experience in Fortran, preferably on IBM equipment. Liaising with users and other programmers you would gain experience in Scientific Applications, Stressing, Thermo Dynamics etc and could expect good career progression and an above average salary.

Reference SD21/2

ANALYST/PROGRAMMERS

Central London

to £6000

If you are looking for a challenge, you should be interested in a position with this large retail company. They operate an IBM 370/145 under DOS/VS and are currently developing a complete Database System using IMS.

The company requires several Analyst/Programmers with a minimum of 18 months experience in COBOL, although any knowledge of ASSEMBLER would be an added advantage. Experience of any DB package, but particularly DL/1, would be of special interest.

In addition to highly competitive salaries, the company offers free lunches, free Life Assurance and discount on goods.

Reference PG21/3

COBOL PROGRAMMERS

City

£4000-£5000 plus Mortgage

A major financial organisation with an expanding ICL 2900 system is seeking several programmers for their city based installation. These positions will be ideal for people with at least one years commercial experience gained preferably on ICL equipment. The company offers a high starting salary and an excellent benefits package including Season Ticket Loans, Flextime and a Mortgage Subsidy Scheme.

Reference JC21/4

RPG 11 PROGRAMMER

City

£6000 plus Mortgage

An international banking group with a small DP department are seeking an experienced Analyst/Programmer who can select and lead a team of three programmers. Personal qualities are obviously important, as is a knowledge of IBM System 3 equipment, however the main requirement is for not less than 3 years RPG 11, coupled with solid Analysis experience. Any knowledge of either banking or CCP would be of added interest.

A high basic salary is envisaged, together with an Annual Bonus, Personal Loan Plan, and a 2½% mortgage scheme.

Reference PG21/5

COMMUNICATIONS PROGRAMMERS

Hertfordshire & North Kent

£4000-£8000

A market leader in computer based communications equipment have a number of opportunities for engineers and programmers in the following areas.

Real Time
Software Engineering
Micro Processors

Distributive Processing
Compiler Software
Data Communications

Experience in any of the above, possibly coupled with a degree, would lead to an excellent salary together with a generous benefit package which includes Flextime, 24 days Holiday, L.V.'s, Generous relocation expenses and Subsidised Company products.

Reference SD21/6

Datascene Recruitment Ltd
Sceptre House
169-173 Regent Street
London W1K 7FB

01-439 7871
24 hour answerphone

TSB TRUST COMPANY LTD

SYSTEMS ANALYST
HAMPSHIRE

Salary Negotiable + Fringe Benefits

The TSB Trust Company, the Life Insurance and Unit Trust subsidiary of the Trustee Savings Banks Central Board is situated in a modern office in Andover in the Hampshire countryside.

The Company has enjoyed an exceptional growth rate and is committed to computing, as the prime tool for operating and managing the Company.

A Burroughs B 3800 has been delivered and existing systems are being transferred to it from bureau machines.

An opportunity exists for a commercial systems analyst to support the establishment and enhancement of these "in house" systems. The Company is also embarked upon the development of an ambitious integrated insurance system with real-time characteristics and the successful candidate will have the opportunity to become involved in this activity in the future.

The Company offers a competitive salary, plus mortgage subsidy facilities, non-contributory pension, life insurance and permanent health schemes. Generous relocation expenses will be available if necessary.

Telephone Andover 62188 Ext. 207 or write for an Application Form to:

Diane Smith, Personnel Department,
TSB Trust Company Limited,
P.O. Box 3, White Bear House,
21 Chantry Way, Andover, Hants. SP10 1PG.

TSB

CONTRACT OPERATIONS
STAFF

D.P. Support Services now require experienced Data Controllers, Operators, and Senior Operators for operations support, to assist us in fulfilling various user requirements on both short and long term contracts.

All types of machinery and operating systems are involved, as are excellent rates of pay and conditions for competent operations staff, willing to use their experience and ability to the full.

Why not contact me to discuss the range of opportunities available?

Telephone in absolute confidence
Steve Gregory

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TEL: 01-437 2062-3/4 (24-HOUR ANSWERPHONE)

dp

TECHNICAL ASSISTANT

GRADE AP to 501 (£2,983 to £5,065 p.a. inclusive of supplements)

Applications are invited from persons with programming experience in COBOL for the above post in the finance department. The Council at present operates an ICL 7020 terminal attached to a 1964 E mainframe at Nottinghamshire county council but both authorities are actively considering an upgrade in the near future. The successful applicant will fill a small section in the maintenance and expansion of newly financial systems and will be expected to perform certain computer controlling and operation functions from time to time. Application forms and job description may be obtained from the undersigned and should be returned to him not later than 12th June 1972.

DEPARTMENT OF FINANCE
ACCOUNTANCY ASSISTANT

Grade AP4 (£3,981-£4,214 p.a. inclusive of supplements). Applications are invited from persons preferably qualified to the interim standard of the C.I.P.F.A. Duties of the post include responsibility for the day-to-day operations of the Council's tax transactions. Applicants must be able to work with a minimum of supervision.

Application forms and job description may be obtained from the undersigned and should be returned to him to arrive not later than 12th June 1972. Convoying of members of the Council or any committees directly or indirectly will disqualify the candidate concerned and any application should also disclose any relationship in a Social Office or member of the Council.

Head of Personnel and Management Services
CARRBANK, MANCHESTER, NOTTINGHAM

Systems Analyst/
Programmer

Can you accept a challenge?
c. £5000

A Systems Analyst/Programmer is required with experience of POP 11/34 to work on Commercial Systems. Experience of RST/A/E operating system would be advantageous.

This is an opportunity for the right person to design systems and programmes from concept to implementation. We are specialist Civil Engineers about to install a new Department and now require a Commercial man or woman to work on our Accounting Systems.

Salary around £5,000 together with other benefits. Please write or telephone.

Mr R. S. Kenrick



Soil Mechanics

Eastern Road, Bracknell, Berkshire, RG12 2JZ
Tel: Bracknell 24861

COMPUTER
WORKSHOP

£4500 to £5500

Join us as a Business Systems Development Consultant at our showroom in the West End. Applicants should be experienced in general Business Applications with either a Sales or Systems Background, and will preferably be able to program in BASIC.

Salaries between £4500 to £5500 are offered, dependent on experience.

For a job card or 01-494 7507
COMPUTER WORKSHOP
38 Dursley Road, London W1

QUEEN ELIZABETH COLLEGE

(University of London)

Camden Hill Road

Kensington, London W8 7AH

ADVISORY
PROGRAMMER

Applications are invited for the post of Advisory Programmer in the Computer Unit. The Unit has a substantial Modern Data system connected to the CDC Computers at the University of London.

Duties consist of taking part in the programming advisory service and in helping for users. Priority in the Unit is given to those who have been able to obtain a degree in the field of computing.

Starting date is for 1972-73. The Unit has a substantial Modern Data system connected to the CDC Computers at the University of London.

For further details and application forms, please contact the undersigned or write to the undersigned at the above address.

For a job card or 01-494 7507
COMPUTER WORKSHOP
38 Dursley Road, London W1

MYRIAD
APPOINTMENTS
LIMITED

Computer Personnel Consultants

PROGRAMMER

N. LONDON "Progress to Analysis" £4500-£5000

Our Client is seeking an ambitious programmer able to offer a minimum of 18 months experience, preferably using COBOL, and keen to progress rapidly to undertake greater applications project responsibility.

- In return our client is able to offer
- * Positive career progression leading to analysis.
 - * Development of new systems in an expanding department
 - * The latest equipment and software products
 - * The opportunity to play a major role in the Company's three year development plan.

This is an outstanding career opportunity for a young programmer to establish excellent foundations for a successful career in data processing. Telephone or write now for an early interview.

Ref N4/2505

SYSTEMS & PROGRAMMING
CONSULTANCYPROGRAMMERS LONDON/BUCKS To £6750
SYSTEMS ANALYSTS To £7500

Join this dynamic systems house currently in a phase of controlled growth. Opportunities to gain experience with a variety of machines and systems makes this an ideal move in the career path of programmers and analysts with 2-3 YEARS commercial D.P. experience.

If you would like to sample several different installations and receive a sound training in professional systems consultancy, this Company offers attractive terms of employment, with projects throughout London and the Home Counties.

Ref W1/2506

BROADEN YOUR HORIZONS

Near CROYDON Analyst/Programmers To £6000

Two additional Analyst/Programmers are required to augment our client's busy systems and programming department and assist in the development of a wide range of new applications.

The computer centre provides unusual and interesting commercial data processing facilities for various applications and users. Working with advanced software products and to professional standards candidates should offer at least two years' COBOL experience and can look forward to gaining involvement in analysis and, in some cases, holding responsibility for small projects.

The Company provides its employees with extremely good conditions of employment and considerable scope for career advancement. Generous commencing salaries will be offered in a range to £6000 p.a.

Ref N3/2505

PROGRAMMERS
"On-Line Systems"

C. LONDON To £5500

If you have around 2 years' COBOL experience this is an excellent opportunity to join a major British organisation for whom you will produce new systems, using a new machine, and have positive career openings available to you.

The Company provide specialist services to all types of industry and their continued expansion has created the need for additional programmers to assist with the development of a complete range of on-line applications over the next few years.

Joining new project teams, the successful candidates will be encouraged to progress to Analysis or Systems Programming in a large T.P. environment.

Based in Central London close to all forms of transport the company provides good conditions of employment including Pension Schemes, L.V.'s, 4 weeks holiday and regular salary reviews.

Ref N2/2508

24-hour answering service

Please telephone for a confidential
discussion or write to:

30 Fleet Street London EC4Y 1AA
01-353 0981

Programmers Systems Analysts

The Aircraft Group of British Aerospace has vacancies in various departments of its Warton Division for Programmers and Systems Analysts.

COMMERCIAL VACANCIES

in our Divisional Spares Department based at Samlesbury

PROGRAMMERS

with 2 to 3 years' general programming experience are required to join a small team engaged on the development of commercial systems concerned with the procurement and delivery of spares. COBOL experience is essential and a knowledge of I.B.M. O.S. operating systems is preferable, but training will be given to successful applicants.

SYSTEMS ANALYSTS

with 3 to 4 years in Data Processing are required to join a department responsible for commercial systems development for all aspects of spares supply. The job will involve user and customer liaison, design and specification of systems, their implementation and on-going support.

SYSTEMS PROJECT LEADERS

are required to lead teams of analysts and programmers on major projects, from conception to implementation. They will be responsible for all aspects of project management, including a high degree of customer liaison.

Suitably qualified men and women are invited to write for an Application Form, quoting Reference No. CW/41781a.

SCIENTIFIC VACANCIES

in our Flight Test Department based at WARTON

APPLICATIONS PROGRAMMERS

with 1 and 2 years' experience using FORTRAN.

SYSTEMS PROGRAMMERS

with at least one year's direct experience to join the team working on an ICL2960 System (running under VME/B) which is to be delivered in the Autumn.

Suitably qualified men and women are invited to write for an Application Form, quoting Reference No. CW/51781a.

There is a choice of rented housing at attractive prices in pleasant residential areas near Samlesbury and within comfortable commuting distance from Warton.

Mrs. E. A. Hall,
Senior Personnel Officer,
British Aerospace
Aircraft Group,
Warton Division,
Warton Aerodrome,
Preston, Lancs. PR4 1AX

BRITISH AEROSPACE
AIRCRAFT GROUP
Warton Division

Programmers and Systems Analysts

Programmers negotiable circa £4,500 p.a.
Systems Analysts negotiable circa £5,000 p.a.

We are part of a major international corporation with insurance interests throughout the world including state companies in Holland and Germany.

We are currently operating an IBM 370/138 with DOS/VS and Power V/S using interactive techniques. This hardware is soon to be upgraded to a 148 and 3380's will be installed by July.

We are now expanding our commitment to the systems and data processing function. We need experienced people to be immediately involved in the development of several wide-ranging projects including data base management, telecommunications, structured and interactive programming using COBOL as the main language.

Our pension office block is set in beautiful grounds at the foot of the South Downs where we have a licensed sports and social club with swimming pool and full sporting facilities. We offer full education expenses, a non-contributory pension scheme and free life insurance. Flexible 26-hour week, night discounts, LVS and a subsidised canteen. There is also a mortgage equity scheme in operation after a suitable service period.

If you have a background with knowledge in finance and would like to work in a stable environment please write to: Bankers Trust Warton Personnel Office, Warton, (0524) 3823 or write to: Personnel Department, Finance Insurance Group, The Mercantile, Woking, Woking, Surrey GU24 0AA.

Excess
Insurance
Group

SALES EXECUTIVE LONDON Up to £12,000 + 2 ltr. car

Our client is an established U.K. Software House with an impressive record of growth, success and innovation.

Due to internal promotion, they have an immediate requirement for an experienced Sales Executive, based in London, who will be responsible for selling systems and programming consultancy services, plus proven packaged systems to industry and commerce.

Applicants should be able to demonstrate a sound knowledge of the computer services market and have a successful record of selling to first time/established computer users.

A generous negotiable basic salary plus an excellent commission scheme will give potential earnings of £12,000 p.a. but there is no upper limit on total remuneration.

A company car is provided and fringe benefits include free BUPA and Life Assurance.

Applications which will be treated with strictest confidence; should quote ref no. RRC128 and be made to:

Clive Harris
Managing Director
Recruitment Resources Ltd
2 Great Marlborough Street
LONDON W1V 1DD
Telephone: 01-437 4083
After hours 01-438 3933

LONDON-CONVENTRY
MANCHESTER-LEEDS-BRUSSELS

2 Great Marlborough Street
London W1V 1DE Telephone 01-439 3817

**RECRUITMENT
RESOURCES
LIMITED**

Systems Analysts for Manufacturing

BOC is a world leader in the manufacture of gas welding products. Our manufacturing operation is one of the most modern and advanced. There is much that is new in the field of engineering to be seen at our plant in Skelmersdale. Our target has been to achieve flow production for high volume lines; to move closer to on-site engineering; to reduce work-in-process; to produce engineered goods at the lowest possible prices and to gear up for fast, reliable deliveries.

We need Systems Analysts who are capable of making



BOC
Engineering Division

a major contribution in this environment. We already have an advanced on-line stock and order processing system and our record of development to date is one of which we are proud. We now seek two people, one who can demonstrate leadership qualities and another with less experience.

If you think you can match our high standards, telephone or write to Ian Pearson, Systems Manager, BOC Ltd, Peel Road, Skelmersdale, 24124.

EUROTECH BELGIUM S.A.

A member of the Cable and Wireless Group, requires for its Brussels-based communications centre,

PROGRAMMERS

C. £8,000 - £12,000

& cost of living indexing

& one month's salary annual bonus

& extra 1/2 month salary holiday pay

& overtime pay

& 20 days' annual leave (plus 12 public holidays)

& lunch vouchers

& the successful applicants will be eligible to apply for tax concessions.

Applicants should have experience in communications programming message switching on mini or micro computers and be familiar with Assembler programming.

Please write or telephone for more details and an application form to:

The Administration Manager
Eurotech Belgium S.A.
191/187 Boulevard du
Soleil
1180 Brussels
Belgium
Tel: Brussels 02/880.48.50

CONTRACT PROGRAMMERS

Several contracts, 1980
Cobol and Pipl

Complex (0234) 711717

UNIVERSITY COLLEGE, CARDIFF School of Mathematics, Law and Computing Studies S.S.A.O. RESEARCH STUDENTS

Applications are invited from computer science students in the 1978-79 academic year to undertake research projects in the following areas:

1. Artificial Intelligence
2. Computer Graphics
3. Database Systems
4. Formal Languages
5. Logic Programming
6. Numerical Analysis
7. Operations Research
8. Programming Languages
9. Software Engineering
10. Systems Analysis

Successful candidates will receive a stipend of £2,000 p.a. plus travel expenses. Further information may be obtained from the School of Mathematics, Law and Computing Studies, University of Cardiff, Cardiff, S.A.O. 900.

WHITBREAD FREMLINS LIMITED



COMPUTER OPERATOR—KENT

We have a vacancy for a Computer Operator with at least 1/2 years' experience on disk based systems preferably on Honeywell Level 64's or similar. The installation, one of six Whitbread installations in the U.K., is an integral part of the company's development of advanced D.P. Systems and networks and therefore experience of communications would be a distinct advantage.

A 2-shift system, 5 days a week, is worked and a good basic salary with fringe benefits is offered. If you are interested please write to me for an application form, Diana Crowley, Personnel Officer, Whitbread Fremlins Ltd., Earl Street, Maidstone.

TURNKEY SYSTEMS SALESMEN VARIOUS UK

£10000-£15000 earnings

EMS has just embarked upon a major new diversification with a £2.5m capital investment project, starting initially with a large sophisticated Data Centre just opening in Birmingham with additional regional centres to open throughout the U.K. during the next two years. Each centre has large hardware development and demonstration areas and numerous software/applications systems development areas. EMS initially will be embarking on a dual system approach marketing both Honeywell Level 6 and ICL 7502s linked to our own mainframes. Equally, substantial investment in package development has been initiated, with teams already at work on a wide range of applications projects. We urgently seek only experienced salesmen capable of working on the promotion of hardware and software systems, with an adequate knowledge of application requirements. EMS have a specialist division dedicated to customer support able to take a large amount of conventional software assessment away from salesmen enabling them to substantially increase their marketing availability. We envisage highly motivated salesmen being of sufficient calibre to present equipment to seminars of clients numbering up to 100 as well as to negotiate without support on occasions at client board level. Earnings should be very attractive for experienced salesmen. Consultant: John Wood.

1,000 COBOL/ASSEMBLER PROGRAMMERS U.K.

£3500-£6000

EMS currently has over 1,000 vacancies all of an urgent nature throughout the U.K. including a large quantity within London and the Home Counties, West Country, West Midlands, North-West, Yorkshire and Scotland. A vast choice exists for all applicants irrespective of location. Vacancies are being notified to EMS at the rate of 200-300 each week. Why miss out on this vast market selection for yourselves. Join thousands of other satisfied EMS users — let the professionals get early results for you. It doesn't cost you anything. With six months' experience upwards, complete the attached application form today. Consultant: Selina Mills/Carol Proudman.

IBM ASSEMBLER PROGRAMMERS LONDON, NW1

To £5000

A major IBM user, with extensive on-line and real-time networking has urgent requirements for numerous additional Programmers to work on the current multi-user system and to assist with ongoing development work. Many fringe benefits exist for experienced ASSEMBLER Programmers including low cost international holidays, etc. Equally, early career progression is possible for motivated programmers. Don't delay, complete our application form today and we will have you in interviews within five days with lucrative offers to follow if your experience is suitable. Equally, we have many other reserve ASSEMBLER positions throughout London for you also. Consultant: Don Philip.

ANALYSTS & PROGRAMMERS BIRMINGHAM TO £5500

The EMS Data Centre at Fiveways, Edgbaston, is currently expanding the Turnkey Systems Division to cope with substantial applications and package development across all business areas. Subsequently, we need experienced, motivated staff able to work to agreed schedules and switch from one applications project to another as directed by Management. Analysts should hold a current driving licence to enable them to make regular visits to U.K. clients in order to discuss individual requirements. Programmers must have COBOL knowledge. Full standards and hardware training will be supplied by EMS at our Data Centre for suitable candidates. Consultants: Dennis Filby/Daniell Harcourt.

IMS DESIGNERS AND PROGRAMMERS TO £8000

We currently have large quantities of vacancies throughout London, Home Counties, Midlands and Northern Counties for any staff with previous IMS involvement, either in industrial or commercial installations. Excellent employment opportunities exist with a large data bank of EMS clients throughout the U.K., unutilised elsewhere. With IMS or PL/I experience, simply complete the attached application form and let EMS rapidly get interviews arranged and early results for you. Consultant: Niall Bradley.

EMS CONSULTING CAREERS

The Group has a range of career development opportunities second to none in the UK, covering all ranges of employment from front end consultancy to back end package development. Facilities Management and Applications Development at our regional Data Centres. EMS Consultants are currently working throughout the entire UK, assisting such clients as Government Agencies, Electrical Manufacturers, Bureau, Distributors, Chain Store Groups, Engineers and Mini-Computer Stand Alone or Network Users. EMS in addition have the only large Data Centre Development unit in the country, based in Birmingham and accommodating up to 160 people. Futuristic training and demonstration facilities have been incorporated within this unit. All work station desks have their own terminals incorporated for program development where appropriate. Extensive package design and development is already in progress to support our Honeywell Level 6 Turnkey Systems sales. We offer wide diverse applications involvement. In all trading areas with the opportunity of UK or international travel, if required. Conversion training to Honeywell hardware will be supplied for otherwise acceptable candidates. Without doubt, EMS will be the place to be during the 1980s. Join now and secure a Managerial position early with a rapidly growing market leader.

ANALYSTS & PROGRAMMERS LIVERPOOL

TO £6500

A major distribution organisation have expanding requirements for more experienced staff to work on a wide variety of commercial projects. Some projects currently being developed include stock control, distribution systems, point-of-sale, sales order processing, depot stores accounting and payroll. Many projects incorporate on-line working. Data-base systems are also being developed within the group. Our client has a vast hardware portfolio offering scope to work for one of the largest installations in Europe. Complete the attached form for an early interview. Contact: Dennis Filby.

ANALYSTS — STAFFORDSHIRE TO £6000

A large processing group of national repute, has 10 systems vacancies for Analysts with a minimum one year's experience. The group has a wide series of advanced, sophisticated management information systems currently operating and plan further continuous enhancements. A knowledge of PL/I or BAL would be useful although not essential. Excellent management appraisal and training schemes exist within the group offering candidates the opportunity of gaining diverse and valuable management services training. In addition to attractive salaries, various fringe benefits are available and adequate relocation assistance. Housing availability within the region is adequate and sensibly priced. Again, the cost of travel is within easy reach of the company and a large shopping centre is available for housewives. The Group in question is a leading national employer with sound industrial relations and a progressive DP expansion plan during the coming year. Please complete our application form without delay for early interview. Consultant: Don Walklate/Anne Lennell.

PL/I PROGRAMMERS SOUTH & MIDLANDS

TO £6500

EMS currently have a wide range of PL/I vacancies both for users and consultants throughout the United Kingdom. Most vacancies involve development projects for major users, often with on-line involvement. Clients include bureaux, distributors, engineers, manufacturers, etc. A wide choice exists for all applicants, just complete the attached form today and let EMS get rapid results for you. Contact: Niall Bradley.

EMS Consultants Ltd.
61-63 Lower Street
Newcastle-under-Lyme
Staffs ST5 2BS
Telephone 0782 823885
(10 lines)

Register NOW!

TO £4500

A large distribution based organisation requires experienced IBM Programmers with from one year's experience upwards of COBOL. Programmers currently resident within Nois would be especially welcome. Our clients offer the opportunity of working on a wide variety of distribution based applications with possibilities of future career development in specialist programming or with the option of a move towards systems. Applicants must be educated to at least HND or degree level
Consultant John Wood

TO £8000

EMS are currently planning the launch of a major time sharing service throughout the North and Midlands based on ICL and Honeywell hardware. Both packages and custom-built facilities will be available. Primary clients will purchase a lease on their own printers, videos and concentrators from EMS, therefore, having total control of their own data preparation. Both on-line and batch facilities are currently available with adequate staff back-up within the EMS Group to handle virtually any range of client requirements. All candidates must have a proven track record in the timesharing field and be capable of negotiating up to 60K contracts. Opportunities exist also to systems in addition. Consultancy Services, Turnkey Systems and Recruitment Services to optimise earnings. Consultant John Wood or Neil Bradley

most advanced banking

One of Kuwait's largest and most advanced banking DP users has urgent requirements for additional Programmers with commercial or even banking involvement. Ability to use CICS would be particularly advantageous. Applicants should preferably be single or married with no children. Our clients require qualifications to minimum HND standard. Assistance will be provided for relocation and additional accommodation allowances. London and Midlands interviews will be held during the next two weeks with early decisions. Please complete the attached application form as soon as possible. Consultant, John Wood.

TO £5000

Our clients, a large engineering group's centralised group computer bureau need additional staff to assist with both development projects and maintaining current systems. Experience of RPG 2 or ASSEMBLER is required preferably having spent at least six months on 370 hardware.

Consultant: Carol Proddman

£5000-£9000

£5000-£9000

Our client, a leading international bank, is engaged successfully in numerous international funding projects. Senior Database/Talprocessing Analysts capable of team leadership are required. Equally, a background involvement at some point is necessary in COBOL. The client is prepared to pay c £9000.

Senior Analysts with personal experience of taking jobs through from feasibility studies to implementation with a COBOL programming background and applications experience in an on-line banking or insurance environment are preferred but not essential. Senior Analysts must show the aptitude for team leadership. For these appointments, the client will pay c £8250.

Senior Programmers with at least three years' COBOL programming and the ability to design complex suites of programs are required. Previous experience of systems design and on-line/off-line time processing will be an advantage. Good communications skills will be required with aptitude to develop your managerial skills. A programmer with at least 18 months RPG II experience, preferably on IBM System 32 or similar hardware are required. The candidate will be involved in program design, coding, implementation and the preparation of documentation. A salary package of c £2850 will be offered.

These and numerous other vacancies will be offered, and must be the best banking vacancies in London today. Take this opportunity of winning out for yourself through EMS. Complete our enclosed application form today. Interviews next week and offers the week after. That's EMS for you.

Consultant Don Philp

TO £6500

Main responsibilities will include carrying out feasibility studies, evaluating the cost benefit of system proposals and preparing systems specs; for handing over to Programmers. Equally, duties will involve system testing, implementation and supervision of one, and later, probably two programmers. Programming experience of RPG2 would be advantageous, as would 3 years' systems analysis experience and design involvement. Teleprocessing experience in a commercial environment is sought. Consultant: Carol Proudman/Dart Photo.

TO £7000

Applicants should be graduates or equivalent capable of working on mini and microprocessors using ASSEMBLER or Real Time commercial applications. The clients are a Business Systems Manufacturer. Relocation assistance is available. Consultant: Don Philo

TO £5500 -1

EMS urgently require experienced Analysts and Programmers to assist with both sophisticated on-line package development and custom-built systems working to agreed time scales. Subsequently, we need experienced staff with a sound commercial or industrial background, able to develop applications systems in Stock Control, Production Control, Sales Order Processing, Accounting Ledger Systems, etc. Equally, we need senior staff capable of assisting with the training of user staff on occasions when introducing custom-built systems. Teams will handle up to four different Turnkey Systems which at any moment in time, ensuring substantial job interest.

Consultant Dennis Filby

£4000-£5500

We currently have hundreds of vacancies on all ranges of hardware for COBOL Programmers in the London and Southern areas. Clients include Banks, Bureaux, Computers, Consultants, Distributors, Engineers, etc. We can produce up to 20 interviews for you within five days of original application. Many candidates are in fact offered both interviews and jobs within five days of application. We offer an unrivalled quantity of vacancies elsewhere within the consultancy business. If you are seeking new work, EMS can obtain it for you. We are in weekly touch with all computer installations. EMS can result for you and attractive salary increases. Complete our application form today and let us get a selection of new jobs for you within the next few days.

Consultant Don Philp/Carol Proudman

TO £8000

We currently have large quantities of vacancies throughout London, Home Counties, Midlands and Northern Counties for any staff with previous IMS involvement, either on industrial or commercial installations. Excellent employment opportunities exist with a large data bank of EMS clients throughout the U.K., unrivalled elsewhere. With IMS or DLI² experience, simply complete the attached application form and let EMS rapidly get interviews arranged and early results for you.

Consultant Niell Bradley.

NEGOTIABLE

Preference will be for ICL experience in a commercial or financial environment using COBOL. Our clients are a Life Assurance Group operating in the North Surrey area. Candidates should preferably have a minimum of 2 years' systems or programming experience. Consultant: Selina Mills.

ENT C £5000

Analysts will be capable of providing systems investigations, recommendations and specifications in concise report format and standards. Equally, although functioning as an Analyst, you should be capable of assisting with programming — RPG or FORTRAN. Applicants should be equally capable of functioning in a Business Analysis role.

Programmers should be experienced in a Production Systems environment, be a tidy and accurate worker and accept occasional odd working hours to cope with varying priorities. Interesting and absorbing employment is available for all candidates.

(Consultant) Don Philp.

SENIORS & STAFFS

[illegible]

TO £8000 P.A.

We are seeking experienced senior consultants with a minimum of 1 year's DIP experience capable of taking control of a project, teams throughout the U.K. All applicants must have acquired some degree of managerial control during the last two years and 50% consulting support staff. A sound knowledge of business information systems will be required, including means such as: Database, TP, Networking, and use of Sales Data Capture and MIS.

Motivation is an important factor, as will the ability to work often long, rigorous hours with a minimum of head office involvement. In short, the task will be to co-ordinate, schedule, monitor and control client contracts to optimise customer satisfaction whilst at the same time accepting a working system which will have a heavy reliance on personal project responsibility. Education to Graduate level is essential. Equal opportunity will be judged on merit and communication ability. Apply in the first instance, with the attached application form to Dennis Filby, Resources Manager.

TO £7000+

EMS urgently require large additional quantities of staff to assist major consulting contracts throughout the United Kingdom, working with bureaux, distributors, engineers, fraying groups, councils and Government agencies. A wide range of vacancies are available within EMS for client support. Equally, opportunities exist for any experienced professional staff interested in working on software products incorporating client systems, new packages, offsite custom-built systems at our new national data centres and post-marketing support. EMS offer the career prospect of a Honeywell experienced staff throughout the United Kingdom and have sophisticated training centres for staff training. For a top career move, consult the attached profile form today so that early interviews can be arranged. Contact Denis Fily.

TO £13000 p.a.

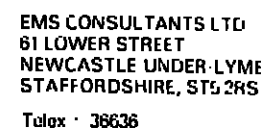
**TO £13000 p.a.
+ ACCOM.**

We now have a large number of new vacancies throughout Kuwait with clients including Banks, Oil Companies, Civil Contractors, Consultants and Firms. FMS have just completed a further book of the country visiting every installation to ascertain new requirements. Developments include MIS, IMS, On line systems and general applications in distributions and stock holders. Hardware tend primarily to be IBM and NEC with a rapid development since the NEC have during the last 12 months. All candidates considering the Middle East should contact us immediately for details and to discuss the attached application form without delay. Interviews will be held during the coming week.

TO £7000

The EMS group have over 120 vacancies throughout the UK for experienced Home-visit staff to assist with both applications development for new or upgrading installations and to work on package development for the level B. A wide variety of installations are available incorporating Engineers, Consultants, Distributors, Chain Stores, Fostle Groups and Local Authorities. EMS offer controlling benefits, a pension scheme, a company car, a company car, a varied career interest and excellent opportunities for early security. Equally, EMS are currently at the forefront of the Level B Turkey Systems Field with a large technically designed Birmingham Data Centre and a new office planned for Leeds and London. With these vacancies the most attractive employment opportunities for current experienced Home-visit staff.

Consultant, Denis Fildes



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Employment Agency & Employment
Business Limited, Rye, M65
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SURNAME											
Other Names											
Address						Telephone					
						Home					
						Bus.					
Post Code									Ext		
Age		Date of Birth		Place of Birth		Nationality		Height		Weight	
Married		Children		Car Owner		Driver		Nature of any Serious Illness			
Position Required											
Required Salary Range											
Present Position											
Salary											
WHERE DO YOU WISH TO WORK											
Within U.K.		Yes/No		Acceptable Areas		Abroad		Yes/No			
Will you move		Yes/No				Europe		Yes/No			
						Middle East		Yes/No			
NUMBER OF YEARS EXPERIENCE											
Operating		Programming		Systems Design		Systems Analysis		Management		Total	
Available for Interviews											
Available for Employment											
DETAILS OF SECONDARY AND FURTHER EDUCATION											
Schools				Date		Examinations Passed					
College/University				Date		Examinations Passed					
Business Courses with Dates											
1. Present Employer											
Position						Town					
						Date Joined					
TYPE OF INSTALLATION											
Commercial		Bureau		Insurance		Scientific					
Manufacturing		Banking		Education		Engineering					
HARDWARE				OPERATING SYSTEM				LANGUAGES			
Software or Packages											
On-Line		Real Time		Time Sharing							
R.J.E.		Tele Processing		Data Base							
APPLICATION AREAS YOU HAVE BEEN INVOLVED IN (Please Tick)											
Cost Accounting		General Ledger		Manpower Planning		Personnel					
Budgeting		Credit Control		Stock Control		Payroll					
Forecasting		Order Processing		Production Control		O.R.					
Corporate Planning		Marketing		Petrochemicals		Reader					
Sales Ledger		Distribution		Linear Programming		Statistics					
Purchase Ledger		Traffic Analysis		Simulation							
Projects Completed						Responsibilities					
2. Previous Employer											
Position						Town					
						Date Joined					
TYPE OF INSTALLATION											
Commercial		Bureau		Insurance		Scientific					
Manufacturing		Banking		Education		Engineering					
HARDWARE				OPERATING SYSTEM				LANGUAGES			
Software or Packages											
On-Line		Real Time		Time Sharing							
R.J.E.		Tele Processing		Data Base							
APPLICATION AREAS YOU HAVE BEEN INVOLVED IN											
Cost Accounting		General Ledger		Manpower Planning		Personnel					
Budgeting		Credit Control		Stock Control		Payroll					
Forecasting		Order Processing		Production Control		O.R.					
Corporate Planning		Marketing		Petrochemicals		Reader					
Sales Ledger		Distribution		Linear Programming		Statistics					
Purchase Ledger		Traffic Analysis		Simulation							
Projects Completed						Responsibilities					

Reason for Seeking Change		Company Ref. No.	
Details of type of position wanted			
Additional Information — Please explain below, in an 8-10 line press, your current duties and applications experience			
FOREIGN LANGUAGES			
Spoken	Written	Read	
Please show the number of years experience of the following. Where your experience is not specified please use the blank spaces.			
HARDWARE	OPERATING SYSTEM	LANGUAGES	PACKAGES/SOFTWARE
IBM 360/370	DOS	COBOL	FILETAB
ICL 1900	OS	FORTRAN	DRIVER
ICL 2960/2970	MVT/MFT	ASSEMBLER	CICS
ICL 2903	GEORGE 1	PLAN	IMS
UNIVAC 1100	GEORGE 2	PL1	BOMP
UNIVAC other	GEORGE 3	RPG 2	D BOMP
BURROUGH 700/800	MCP	USERCODE	PERT
BURROUGHS other	Exec 8	AUTOCODE	V SAM
HONEYWELL 66	GCOS	EASYCODER	IDS/TDS
HONEYWELL 6000	OS 2000/200	ALGOL	MICROFILMING
HONEYWELL other	VMEB/VMEK	NEAT	TELEPROCESSING
NCR	J Level	CORAL	DMS
ICL System 4		DL1	
PDP			
3. Post Employee Position		Town Date joined	
TYPE OF INSTALLATION			
Commercial Manufacturing	Business Banking	Insurance Education	Scientific Engineering
HARDWARE	OPERATING SYSTEM	LANGUAGES	
Software or Packages			
On-Line R.J.E.	Real Time Tele Processing	Time Sharing Data Base	
APPLICATION AREAS YOU HAVE BEEN INVOLVED IN			
Cost Accounting	General Ledger	Manpower Planning	Personnel
Budgeting	Credit Control	Stock Control	Payroll
Forecasting	Order Processing	Production Control	O.R.
Corporate Planning	Marketing	Petrochemicals	Radar
Sales Ledger	Distribution	Linear Programming	Statistics
Purchase Ledger	Traffic Analysis	Simulation	
Projects Completed		Responsibilities	
PLEASE CHECK THAT EACH SECTION HAS BEEN TICKED APPROPRIATELY			
ADDITIONAL INFORMATION			
General			
Data Processing			
Terminals			
Software/ Packages			
Application Areas			
Projects and Responsibilities			

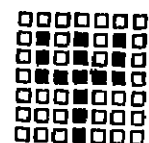
OPERATIONS PERSONNEL ENJOY REWARDING CONTRACTS AT TRIDENT OFFERING REAL SECURITY

On both long and short term contracts using all machines and operating systems.

For more details contact:

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MYRIAD OPERATIONS Computer Personnel Consultants

PRODUCTION SUPERVISOR

N.W. LONDON

To £5,000

The management services division of a London based manufacturing and marketing organisation is currently seeking a manager to take responsibility for a team of eleven people handling Data Transmission, Data Control and Data Preparation for their expanding computer centre.

The installation is based on a Burroughs Medium System, and data transmission links to the Company's retail outlets throughout the United Kingdom and Europe are controlled by a mini-computer.

Applications are invited from candidates who can offer sound supervisory experience, gained in a relevant area, and who are keen to pursue a demanding yet rewarding career within a progressive environment. The ability to communicate with users at all levels is important since the person appointed will provide the first line of contact for most branch staff.

Excellent conditions of employment are offered in conjunction with a range of fringe benefits, including a staff discount purchase scheme for company products.

This is a career opportunity which can offer a secure and interesting future.

Ref. OS1/2505.

24-hour answering service
Please telephone for a confidential
discussion or write:

30 Fleet Street London EC4Y 1AA
01-353 0981

New Systems=New Challenge

Programming Professionals

To share in the growth of a European Leader-
Come and work in Rural Herefordshire.

The Company We are the leading manufacturer of high nickel alloys in Western Europe. We are a successful, stable, progressive and steadily growing company expanding our computer operations in line with other areas, and are now about to introduce data base and real time processing to expedite the development of vital production planning and integrated recording/reporting projects. Hardware consists of an IBM 370/148 2 M/B with discs and tapes and a 3700 distributed processor using OS/VS1 CICS and Adabas. Our main programming languages are PL/I and Assembler.

The Professional If you are an experienced program design or programming

professional with experience of the above or any other similar computer system you can help us develop our computer operations and enjoy the career satisfaction implicit in the development of new systems.

The Rewards We are offering salaries which together with the full range of fringe benefits, including a non-contributory pension scheme, make up an attractive rewards package. Assistance with relocation is also provided where appropriate.

Please write, enclosing full career background in detail, to: George Nairn, Senior Personnel Officer, Henry Wiggin & Company Limited, Holmer Road, Hereford HR4 9ST.

WIGGIN

ADP

ENGINEERS

COMPUTER and COMMUNICATIONS
JUNIOR-SENIOR £3,000-£7,000
BUPA+PENSION+LIFE ASSURANCE
ALLOWANCES

- Experience needed in any of the following:
- * DEC PDP8/11s/MINIS
- * TIME/FREQUENCY DIVISION MULTIPLEXING
- * SYNCHRONOUS/ASYNCHRONOUS MODEMS
- * DEC SYSTEM 10's or LARGE MAINFRAMES
- * G.P.O. SWITCHED NETWORK/MODEMS
- * MAG. TAPES/DISC PERIPHERALS

to work for the world's largest independent computing bureau with over 34 DEC 10's-200 minis, 40,000 miles international network satellite linked to the U.S.A. Excellent career development - on/off site training.

Ring BARRY GALVIN or PAUL BARFIELD on 01-837 1355 or write to Barry Galvin, ADP Network Services, 179-193 Great Portland Street, London WIN 6TB.

COMPUTER ANALYST/ PROGRAMMER

Chloride Alcad Limited, a leading manufacturer of nickel cadmium batteries and part of the Chloride Group wishes to strengthen its Data Processing Department by recruiting either an analyst/programmer or programmer for its ICL 2803/30 installation.

The successful candidate will join a small team and will have responsibility for developing systems and programs to improve the company's management control information and assisting in the development of major on line integrated systems.

Applicants should have had several years' experience of similar work and be competent in either RPG II or COBOL. The company offers an attractive salary together with excellent career development opportunities.

Please write or telephone for an application form to
Adrian Bouwens,

Chloride Alcad Limited
Union Street, Redditch, Warwick, B98 7BW Tel: 0452 623451

CHLORIDE



UNIVERSITY OF LONDON COMPUTER CENTRE

The University of London Computer Centre provides a regional computer service to the University of London and to Universities in the South East and South West of England. The Centre is equipped with Control Data 7600, 6600, 6400 and CYBER 72 computers and supports a large communications network of over 50 remote batch terminals and 30 keyboard terminals.

TELECOMMUNICATIONS

A Programmer/Analyst

is required to join a team engaged in the design, development and maintenance of telecommunications systems in mainframes and minicomputers. An exciting programme of development is planned which includes a major commitment to networking and new protocols.

Applicants should have a sound experience in assembly language programming and with telecommunications software.

SYSTEMS

A Programmer/Analyst

is required to join our operating systems teams and to help in the development and maintenance of the SCOPE 2.1.4 and NOS/BE operating systems. The work is challenging and involves evaluation and implementation of performance and other service improvements.

Applicants should have some experience in operating systems development.

QUALITY ASSURANCE

A Programmer/Analyst

is required to join the Quality Assurance Unit at ULCC. This unit is responsible for the integration of operating systems modifications and for the systematic testing of the operating systems, the public compilers and application software. This unit is also responsible for monitoring the quality of service.

Applicants should have at least one year's experience in programming.

USER SUPPORT

A Programmer/Analyst

is required to join the teams engaged in the implementation, maintenance and support of application packages, including an accounting suite, and in the provision of a professional advisory service.

Applicants should have a good knowledge of at least one programming language, preferably FORTRAN.

Applicants for all posts should be educated to degree standard, preferably with post-graduate qualifications. The ability to communicate clearly both orally and in writing is essential. Candidates may be considered who have relatively little specialist experience of computing but who are very well qualified in some other scientific discipline and who wish to make computing their full-time occupation.

Salary will depend on qualifications, experience and age, but will be within the range £3189-£6178 + £450 London allowance.

Holidays: Six weeks per year plus Bank Holidays and five extra days.

Modern offices conveniently located for London Transport Services and Main Line Stations. Loans made to purchase Annual Season Tickets.

Further details and application forms are available by phoning Veronica Minards, 01-406 8400 extension 239, or by writing to the Secretary, ULCC, 20 Guilford Street, London, WC1, closing date for completed application forms 9th June, 1978.

FORTRAN PROGRAMMERS LONDON

To join the Computer Department of a major International Group of Civil Engineering Consultants and Architects.

PROGRAMMERS

We have vacancies for two programmers to work in our Notting Hill Gate office, to advise engineering staff on the use of computer programs and to carry out detailed flow charting, designing files, writing and documenting programs. Requirements are a degree or education to 'A' level standard in maths or science, and a sound knowledge of Fortran.

One post (ref. 1698) is suitable for a beginner. For the other post (ref. 1623) a minimum of one year's practical experience is necessary.

SENIOR PROGRAMMER

There is a vacancy for a Senior Programmer in our Hammer-smith office to work with engineers and architects. Duties will include operation and maintenance of equipment as well as writing, testing and maintenance of programs, and program documentation. A minimum of four years' practical experience is required. An advanced Computer Aided Design system is in use, so experience of computer graphics will be of value. (Ref. 1023).

We have Prime 300 mini-computers and for all posts experience of modern mini-computers would be an advantage. We offer excellent working conditions and competitive salaries.

Please apply in writing, quoting the appropriate reference and giving personal details, qualifications and experience, to:

N. W. RAMSAY
Director of Personnel, HALCROW
518 WILKINSON ROAD, HALCROW
Newcombe House
48 Notting Hill Gate
London, W11 3JX

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POSITION	SALARY	EMPLOYER	LOCATION	HARDWARE ENVIRONMENT	SOME OF THE QUALIFICATIONS	REF. NO.
Systems Designers	to £6,300 + mort.	Financial Services	Herts.	IBM OS	Excellent opportunities for analysts with a programming background to develop interesting financial systems.	21/1
Programmer/Analysts	to £15,000	Software House	Holland	Minis	D.P. professionals with experience of process control, networks and M/C control or technical and scientific background urgently required.	21/2
Programmers	to £5,500 +	Manufacturer	Essex	ICL	A1 opportunity for programmers with 2 yrs+ COBOL experience to join a progressive organisation.	21/3
Analyst/Programmers	to £7,000	Software House	WC1	Any	Urgently required - analyst/programmers with minimum 18 months + COBOL experience to join a dynamic organisation.	21/4
RPG II Programmers	c £4,500 +	Insurance	EC	IBM	Programmers with some RPG II experience required to join a new development team.	21/5
Analyst/Programmers	to £17,000 tax free + accom.	Computer Services	Tehran	PDP's IAS/RXII	2 yrs+ contracts available for staff with COBOL/FORTRAN and software/application experience on current models of DEC equipment.	21/6
Project Leaders	c £7,000 + +	International Banking	EC	IBM DOS	Opportunities for analysts with some team leadership experience and 2 yrs+ analysts to join a dynamic team. Financial background preferred.	21/7
Software Analyst Programmers	to £7,000	Manufacturer	Middx.	Minis	Analyst programmers with at least 3 yrs. experience and COBOL/RPG II required to join a new development group.	21/8
Analysts/Programmers	to £7,000	Construction Industry	SW1	IBM OS	First class opportunity for analysts and programmers to join a rapidly expanding D.P. department.	21/9
Technical Analysts	to £6,000 + car allow	Manufacturer	N. & S. London	Minis	D.P. professionals required to join a new division of a major company to develop commercial/business systems.	21/10
Analysts	to £6,000 + +	Transport Services	Berks.	IBM + Minis	Openings for analysts with 2 yrs + systems experience. Distributive processing and minis experience preferred.	21/11
Junior Programmer	to 45,000 Guilders	Manufacturer	Amsterdam + travel	Minis	Excellent opportunity for 18 months + assembler programmer to join a small and exciting development team.	21/12
Permanent/Contract Programmers	to £6,000	Software House	EC1	Burroughs	Urgently required to join a rapidly expanding software house, programmers with 2 yrs+ Burroughs COBOL. Some analysts experience preferred.	21/13
Analysts/Programmers	to £6,400 + +	Computer Services	N. Surrey	IBM/Minis	Unique opportunity to join an organisation engaged in DB/TP, COM, mainframes and minis-systems.	21/14
NEAT 3 Programmer	£10,000 + accom.	Software House	Middle East	N.C.R.	Urgent requirement for a 2 yr+ NEAT 3 programmer to work on various applications in UK/Middle East.	21/15
PL/I Programmers	to £5,500	Bureau	N. London	IBM	PL/I programmers with 2 yrs+ experience required to join the expanding organisation to work on a variety of commercial applications.	21/16
Programmers	to £5,500 + mort. +	Insurance	EC2	ICL 1900	1900 COBOL programmers with minimum 18 months' experience required to join this expanding DP department to work on on-line systems.	21/17
Software Staff	to £7,000	Manufacturer	Surrey	Minis	Urgently required - software staff with commercial background to perform administration/training functions.	21/18
Assembler Analyst/Programmers	to £6,000	Insurance	EC3	IBM OS	First class opportunities for analyst/programmers with knowledge of assembler/CICS to develop TP systems.	21/19
Systems Analysts	to £7,000 + benefits	Manufacturing/Distribution	EC1	Honeywell/Minis	Opportunities for analysts with 2 yrs+ commercial experience to join a DP department using terminals/minis.	21/20
Analysts & Programmers	to £6,700	Construction/Building Industry	W. London	ICL 1900	Openings for people with sound 1900 background to join an expanding company.	21/21
Scientific Programmers	to £6,500	Manufacturing/Services	Various S.E. England	Minis	Several interesting posts available to experienced programmers with knowledge of process control/scientific/minis.	21/22
Programmer/Analysts	to £6,000 +	Manufacturer	N.E. Surrey	IBM + Minis	Programmers with 2 yrs+ COBOL/BAL experience required to work on DB/TP applications.	21/23

1 PTL 3 PRG

Another winner for Square One. We have recently secured an attractive project which will be developed on client installation in the City. The project is to implement an interactive real-time and database system on Hewlett Packard equipment using the Image database software and Cobol.

We need a good Programming Team Leader to control the implementation of the project. He/she should have about five years programming experience with emphasis on planning, scheduling and implementation, good leadership ability and a high degree of motivation. A knowledge of real-time and database would be of advantage; a sense of humour and a willingness to work hard are essential. Starting salary up to £7,000 p.a.

Additionally, we need three good Programmers who have a minimum of two years experience of Cobol, not necessarily on Hewlett Packard. An appreciation of high standards and a desire for interesting work are essential. Starting salary up to £6,500 p.a.

Square One offer good salaries and company benefits including profit share and travel expenses. If you can make the grade as Consultant, contact Ann Truelove on Chesham 75231. Or if you prefer to ring in the evening, leave a message on our answering machine on Chesham 74161.



Just in life

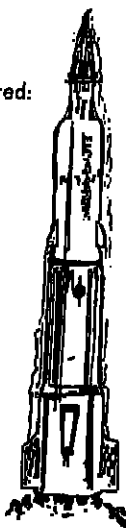
LAUNCH into EUROPE!

The fastest growing independent computer services company in Belgium has immediate openings for a large variety of expertise, in the international aero-space industry. A real challenge is awaiting you as an analyst, programmer, software and/or hardware systems engineer, project leader and specific aero-space industry expert.

We offer you:
— a high salary from £14,000 per annum + tax benefits
— company stability
— job stability
— long term contracts.

Your experience in the following hardware and software is urgently required:

Hardware	Software
CI 10070	Real Time
ICI 4/72	Teleprocessing & Communication
ICI R980	mini-computers
IBM 370/145	ORG PP2 (Siemens)
IBM 1800	Metasymbol
Honeywell 316	Cross compilers CPL 1
716	Fortran
Philips 885	PL 1
Xerox Sigma 9	Siris 7
Motorola 6800	Assembler
Dietz mineal 620	Exosat
AEG 80/20	Corat
PDP 80/20	Algol
Siemens 330	Pascal
Mitro 125	Simula



Any other expertise not listed i.e. mech & electronics engineering. Also required an operator 7740 Siemens BS 2000 for 1 year in Luxembourg. Data general 3330 expert AOS-INSOS. Please, let us have your experience; we will make sure you have a pleasant stay with us for a long time to come.

Please give us a phone-number where we can reach you.

Yves HOMPE,
Technical & Commercial Director

Daniel BORREY,
President - General Manager

CORRELATIVE SYSTEMS INTERNATIONAL
rue Général Lemon 43/45 B - 1040 BRUSSELS
Tel: 010 322-735 2819/649 90 30

HERTFORDSHIRE COUNTY COUNCIL SOFTWARE PROGRAMMER

Salary range £5,632-£6,697 p.a.
Plus phase 3 pay award due 1st July, 1978.

Hertfordshire County Council is one of the pioneers in Local Government computing. As a result of internal reorganisation a vacancy has now arisen for a Software Programmer.

The latest NCR Criterion range, a 1M byte 8580 computer with large disks, fast tapes and terminals, providing virtual storage and interactive programming facilities, will replace the present large Century 261 installation in September.

Responsibilities of the post include:—

- * maintenance of all aspects of the operating system, programming languages, utilities and on-line software,
- * assisting the Programming Manager with Programmer training and the maintenance of programming standards,
- * liaison with manufacturers on software developments,
- * advising Operations staff on techniques to improve machine productivity,
- * advising staff on programming technicalities.

We offer generous holidays (28 days) and a contributory pension scheme with a wide range of benefits. Ideal working conditions — new offices and staff restaurant and a range of sporting facilities in an attractive rural setting overlooking the County town of Hertford. The centre of London is only half-an-hour away by rail.

Removal, disturbance and lodging allowances are payable in approved circumstances and assistance with housing may be given.

If you would like an informal discussion to learn more about this post, please telephone Peter Beale at Hertford 54242 on extension 5396. Written applications giving full details of relevant past experience, age, etc., should be addressed to the County Treasurer, County Hall, Hertford, quoting ref. CP 46 by 9 June, 1978.

MINI/MICRO PROFESSIONALS

We are particularly interested in professionals with real time mini or micro processors experience to undertake development assignments in and around the London area.

Our usual rates are between £200-£350 per week.

TELEPHONE JIM TAYLOR ON (0279) 418311 — REVERSE CHARGES



PROGRAMMING TEAM LEADER to £5,500

NJC G.7

SENIOR PROGRAMMERS to £5,000

NJC G.6

PROGRAMMERS to £4,500

NJC G.5

'PLUS NEW AWARD FROM JULY 1978'

As one of the most advanced Honeywell large users in the UK, we're into database and TP in a big way, using Honeywell's latest and best software — IDS-2 and DMIV/TP — all under GCOS 4J.

The installation at our new Computer Centre comprises a dual Honeywell 68/110 with 384K words of core, 2,800 megabytes of exchangeable disc storage, tapes, printers and a major network of terminals based on Incoform's 20/30 controllers.

Our first applications are well under way with a major Customer Service System due to go live in April 1978.

We're located in Huntingdon, an area of reasonable housing costs which offers a wide range of leisure pursuits. With Cambridge only a half-an-hour away — and within 1 hour of London by train, the overall quality of life is high.

The Authority offers excellent conditions of service and generous removal expenses if relocation is necessary.

If you're interested or want to know more about these opportunities, why not call Paula Turner at Huntingdon (0480) 56181 Ext. 371, for information and an application form.

The closing date for applications is 9th June 1978 and should be sent to:

ANGLIAN WATER AUTHORITY
Brook House, Ouse Walk, Huntingdon, Cambs. PE18 6NZ

We're looking for:

— a Programming Team Leader to take responsibility for programming project team and to assist with system and program specifications and also

— the best COBOL PROGRAMMERS around to implement a variety of automated systems using modular/structured programming techniques and on-line program development.

If you have the experience — but not on Honeywell 68 — we'll train you.

SENIOR ANALYST

c.£5750+Car & Generous Removal Allowance
New Installation
S.W. London/Surrey

Our clients, a successful company with an impressive growth record, are seeking a man or woman with comprehensive analysis experience and a knowledge of COBOL for this new and challenging appointment.

In addition to a salary around £5,750, plus car and generous removal allowance, they offer:

- * FREE: Pension and Life Assurance, BUPA
- * Discretionary Bonus
- * 27½ Days Annual Holiday
- * Generous Sick Pay Scheme

Send brief career details please to: Position No. ESS 8779, Austin Knight Limited, London W1A 1DS, or telephone (after 5 p.m.) 01-734 2476, giving address and telephone number.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Position Number Supervisor.

AK ADVERTISING

University of Essex

Computer Officer in the Department of Computer Science Computing Service

Applications are invited for the post of Computer Officer (Grade 1A — salary scale £3660-£6178 p.a.).

Applicants should have interest in the numerical aspects of computing with particular reference to statistics and their use in the social sciences. Experience in the design and maintenance of Social Science packages, and familiarity with the concepts of low level language programming would be an advantage. The successful candidate might well possess a degree in Computing Science. He/she will join an established Programming Group, which has responsibility for all aspects of software maintenance and development for all aspects of Service machine. This is a DEC system: 10/70, providing an extensive timesharing and batch service.

Applications (six copies), including a curriculum vitae, must be sent to the Registrar (AG 22/CV), University of Essex, Wivenhoe Park, Colchester CO4 3SD, from whom further particulars may be obtained, by June 30, 1978.

CITY OF LONDON POLYTECHNIC COMPUTER SERVICE COMPUTER OPERATOR

Applications are currently invited for the post of Computer Operator for the successful applicant to join a small team operating on a two shift basis. The successful candidate will be responsible for the operation and maintenance of the computer system.

For further details and an application form, please apply to the Assistant Secretary, City of London Polytechnic, 117 Houndsditch, London EC3A 7DU.

TAMWORTH BOROUGH COUNCIL BOROUGH TREASURER'S DEPARTMENT COMPUTER OPERATOR

Machine Operator grade (12,13,14,15) plus supplement of £50 p.a. at top of the grade.

Applications should be sent to the Borough Treasurer, Tamworth Borough Council, 117 Houndsditch, London EC3A 7DU.

Gloucestershire County Council

EAST STAFFORDSHIRE DISTRICT COUNCIL TREASURER'S DEPARTMENT SYSTEMS ANALYST

Grade AP 4/5/50, 1 — £3861-£5085 (including supplements)

Applications are invited from experienced systems analysts for this post which ranks second in the Computer Section. The installation comprises an ICL 2903 with 2 EDS 80; shortly to be upgraded by the addition of a further EDS 80 and 7502 communications equipment, both local and remote. Experience in the implementation of communication systems would obviously be an advantage.

Starting salary will be negotiable within the above range, an appointment within Grade SD 1 (£4768-£5085) being considered appropriate for a suitably qualified candidate. Removal, lodging expenses and relocation allowances will be payable in appropriate cases. Housing accommodation will also be considered.

Applications giving details of age, qualifications and experience should be sent to the Personnel and Establishment Officer, East Staffordshire District Council, Town Hall, Burton upon Trent, Staffs. DE14 2EB, no later than 31st May, 1978. Please quote reference T 3 D.

KUWAIT

Senior Organisation & Methods Analysts

Excellent starting salary and benefits package

Our client is Yusuf A. Alghanim & Sons, without doubt, one of the most successful companies in Kuwait. They are the second largest General Motor dealers in the world and have many other interests which include travel, electronics and construction.

Their Management Services Department plays a central part in the continued development of the company. Their Organisation and Methods Group is fundamental to the success of that management services operation.

They now would like to meet a number of experienced Organisation and Methods "all-rounders." They are particularly interested in Analysts who have experience of clerical work measurement in a financial environment and also those who have developed clerical systems linked to computer development.

Currently, you will be working either as a Senior Analyst or as an O & M Supervisor, or Manager, and will have at least 4 years' organisation and methods experience. You will be capable of working on your own for reasonable periods of time and will certainly be a self-starter.

On the personal side, you will probably be married, will regard a move to Kuwait as more than a short-term episode in your career, and will realise the importance of the move in the context of your total career development.

Apply by sending full career details to John Goldsmith, quoting Ref. 1589, as our clients will be in the United Kingdom during the first week of June.

Yusuf A. Alghanim & Sons w.l.l.



WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER
John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356—24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

Data Control Supervisor

c.£4,700 Bracknell

Avis is the acknowledged world leader in vehicle rental and Avis Management Services Ltd in Bracknell is the headquarters of the Europe, Africa and Middle East Division of the Company.

Our Systems Department plays a major role in the success of the organisation and due to an internal move we now have a vacancy for a Data Control Supervisor.

Reporting to the Operations Manager, the person appointed will be responsible for the day to day running of the Data Control section with the supervision of two staff. User contact throughout the Division is an important aspect of the job together with ensuring that deadlines on schedules are met and recommending non-routine action as required. Responsibility for designing and implementing standards for the section will also be an important factor.

Candidates should be over 25 and be educated to a minimum of O level standard with three years' previous experience in work scheduling and administration within a computerised environment. Previous supervisory experience is essential.

Salary and job prospects are excellent within this expanding department and the Company offers a non-contributory pension scheme and a subsidised staff restaurant as part of the benefits package.

Please write or telephone for an application form to the Personnel Department, Avis Management Services Ltd, Avis House, Station Road, Bracknell, Berkshire, Bracknell 26644.



Management Services

LOLA (London OnLine Local Authorities) provides computer facilities to a consortium of four London Boroughs. The Computer Centre is situated in modern offices at Enfield and current equipment is a 2megabyte IBM 370/158. On-line updating facilities are supported on over 100 remote VDUs with programs written in PL31 running under IMS/VS.

Currently there are vacancies for:

LEADING OPERATORS (£4,330-£5,269 Incl.)

Applicants should be at least 18 years old and have minimum of 18 months' experience of OS/VS1 (or comparable operating system). IMS experience would be deemed an advantage. Preferably educated to 'A' level but consideration will be given to people with 'O' Levels including Maths.

SHIFT CONTROL CLERK (£4,330-£5,269 Incl.)

Applicants should preferably be educated to 'A' Level Standard but must have at least 4 'O' Levels. One year's experience in a Control environment is necessary plus a good working knowledge of JCL.

OPERATORS (£3,834-£4,243 Incl.)

Applicants should have a minimum of 1 year's experience of OS/VS1 (or comparable operating system). Availability for 3-shift working is essential.

A cost of living increase to take effect from 1 July is currently being negotiated. Assistance is given with legal fees and removal expenses where appropriate. Further details about the Operating posts from Peter Anthony on Ext. 266 and from Norman Bennett on Ext. 230 for Shift Control Clerk vacancy.

Application form from Mrs. B. Dorrington
LOLA (London OnLine Local Authorities)
Tower Point North
Sydney Road
Enfield
Middle EN2 8UB
Tel: 01-305 8911 (Ext. 276)



CAPITAL APPLS.
FORTAN
Programmers
(Urgent) required for 'Julia' trial and Scientific Development. 13,000/18,000. 11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183

COMPUTER ENGINEERS

Due to continued expansion of our Engineering Support Group, further vacancies now exist for Support Engineers.

Applicants should have previous experience of either mainframe or mini computer systems and associated peripherals.

Salaries are negotiable up to £5000 p.a. and a company car is provided.

Please telephone (reversing charges) Radlett 2211 and ask for Steve Clarkson, or you can write him at the following address:

GMC Computer Machinery Company Limited
Dart Building, Colney Street, St. Albans, Herts.
Telephone Radlett 2211

OEM Sales Engineers Argus 700 Computers

A major expansion in OEM sales of the highly successful Argus 700 range of minicomputers has created openings for Sales Engineers at our Wythenshawe Division in South Manchester.

These posts offer excellent opportunities for progression within this expanding Division of the Company. Competitive salaries will be offered and a company car will be provided where appropriate. If you have a background in Minicomputers and believe you can contribute to our OEM sales, apply, quoting reference 78WD23/CW, to:

Mr. W. L. Robinson,
Ferranti Limited,
Simonway,
Wythenshawe,
Manchester,
M22 5LA.

or ring John Cummings, OEM Sales Manager, on 061-437 5391 for an informal chat.

FERRANTI
Wythenshawe Division

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ANALYSTS £5,000/£7,000
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Haymarket Computing are D.P. recruitment consultants to 35 companies in the Herts/North London area and we are currently anxious to meet Analysts, Analyst/Programmers and Programmers on behalf of clients located in: Stanmore, Harrow, Borehamwood, Cockfosters, Enfield and Tottenham.

Applicants will be invited to look through our client register which details the companies, positions, salaries, prospects, etc., so that we may jointly choose the vacancies best suited to your requirements and experience.

For more information ring
HAYMARKET COMPUTING LTD.
Tel. Cuffley (Herts) 4130
up to 6:30 p.m.



LONDON BOROUGH
OF BROMLEY

SYSTEMS ANALYST

AP.9 £4,830 - £4,900
inclusive (REF. B.278)

The post is in the Borough Treasurer's Department which operates an ICL 1903T computer running under the George 3 operating system, with terminals and VDU's.

The work is of a varied nature and there is opportunity to become conversant with the many differing applications, both financial and non-financial, in the local government field. The successful applicant will initially be involved in assisting with the design and implementation of a new budgetary control system with provision for on-line VDU facilities.

Applicants should have been educated to University degree standard or have five G.C.E.'s with two at 'A' level standard. They should have also undergone formal training (usually obtaining the NCC certificate in systems analysis) and have had at least three years' experience in the development and maintenance of computer systems.

For further information please telephone the Computer Development Manager on 01-464 3333. Ext. 3288

Application forms from Assistant Chief Executive (Manpower), Town Hall, Bromley BR1 1SB. Tel: 01-464 3333. Ext. 3318. Closing date: 7th June, 1978.

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Training Officer

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The areas of responsibility are for training new staff in COBOL (ANS), Basic Systems Analysis and Design, Structured Programming and BAL (IBM). The Jobholder will liaise with line management on the overall training requirements of this section of the staff and monitor the performance of candidates studying for BCS membership.

The successful applicant will be expected to possess the relevant academic qualifications and/or practical experience in a large installation. This appointment would be of particular interest to a Lecturer seeking at the same time to widen his knowledge of a large commercial installation.

Salary will be commensurate with experience, starting at £5,238. The Company has a non-contributory Pension Scheme and other fringe benefits.

Applicants are invited to write to E. Watson, Personnel Manager, The Joint Credit Card Company Limited, Access House, 200 Priory Crescent, Southend-on-Sea, Essex, SS2 6QQ.

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Computing
Services
Association

The University of Sussex Systems Programmer

Graduate (male / female) experienced in programming required for a systems programming post in the Computing Centre which has ICL 1904S and CTL Modular One computers. Two systems programmers are responsible for operating subsystems, installing updates of manufacturers software and producing performance and utilisation reporting software.

Faculty post on Other Related Grade 1A, £3,960-£6,178 per annum with four weeks' annual leave plus approximately 16 days University closures and bank holidays.

Application forms from the Staff Records and Recruitment Officer, Sussex House, University of Sussex, Falmer, Brighton BN1 9RH, to be returned not later than 23rd June, 1978. For further information telephone Brighton 608755, Ext. 662.

Quality Assurance

SPL International is one of Europe's largest software and systems houses. We are expanding our activities over a wide range of advanced projects and need:

* A computer professional to join our Quality Assurance Group in London.

The Group is responsible for the organisation, production and maintenance of standards, quality control methods, and the continual review and audit of all our projects carried out in the UK and overseas.

Applicants must have previous experience of project leadership and be able to demonstrate achievements in the development of standards and quality control methods and procedures. They must be keen to develop their careers in the vital area of Quality Assurance, be capable of working in a multi-project environment and be tactful, confident and professional in approach.

Salary by negotiation according to experience. To discuss this opportunity and to arrange an interview please write to telephone

M. J. Pritchard,
Quality Assurance Manager,
SPL International
19-21 Windmill Street,
London W1
Tel: 01-636 7833

United Kingdom Patent Office
Patent Office, 19-21 Windmill Street,
London W1

THE POLYTECHNIC, WOLVERHAMPTON

The Polytechnic runs a 96K ICL 1903A under the George 3 operating system and is planning to replace this in 1979 with a large interactive system supporting terminals located in all the academic and administrative sections of the Polytechnic, both locally and at remote sites. We are looking for staff to join an expanding team to deal with the rapidly growing computing applications into the 1980s. Two vacancies currently exist.

PROGRAMMER

Applicants should preferably have a sound programming background (not necessarily in an education environment) but new computer science graduates will also be considered. The work generated within the Polytechnic is of a varied and interesting nature. Many new applications will arise with the introduction of the planned interactive system.

SHIFT LEADER/ SENIOR COMPUTER OPERATOR

Applicants must have 1903 computer operating experience and be prepared to adapt to the challenges of the new system. Two shift working in operation during term time: single shift during vacations.

Salary Scales:

Programmer £2,983-£4,214 p.a.

Shift Leader £2,983-£3,323 p.a. plus 14% shift allowance.

An increase on these scales is expected within the Government's Stage Three Policy with effect from 1st July, 1978.

Assistance with removal expenses will be given in the appropriate cases.

Further details and application form from

The Establishment Officer

The Polytechnic

Wolverhampton WV1 1LY

Tel: Wolverhampton 27371

MYTH SHATTERING NEWS FROM CAP-CPP

In the computer world things move fast. So fast that many people have to form opinions quickly. Sometimes those opinions are based not on fact but on myth. Maybe you have the wrong idea about CAP-CPP. We believe CAP-CPP leads the world in software for new computing technologies, as well as being an established leader in more traditional computing skills.

"MYTH"

A software house like CAP-CPP cannot offer me a future in computing is going.

For 16 years CAP-CPP has grown and made regular profits. During this time we have built a considerable expertise in many areas of computing. Next year we will spend nearly £14 million on staff courses and training to ensure that our staff stay ahead of the market in their skills.

BASIC SOFTWARE PROGRAMMERS/DESIGNERS READING TO £6,000 + BONUS

3 years' practical experience of compilers, operating systems and communications software is needed. Knowledge of PDP11 software and COBOL 66 would be of particular interest. Ref. No: 1156/CW.

BUSINESS ANALYST READING/MANCHESTER TO £7,000 + BONUS

At least 4 years experience on minis and commercial systems involving a variety of applications is essential. The ability to liaise with clients in a pre and post sales advisory role is expected. Typical experience would cover accounting, order processing and stock control systems. Ref. No: 1157/CW.

"MYTH"

CAP-CPP specialises in large banking and insurance projects on large mainframes.

The major portion of our work is now in the small business systems field using minis and micros but often for large clients. Our staff work closely with a number of mini and micro manufacturers, as well as in the traditional areas of mainframe computing.

COMMERCIAL PROGRAMMERS LONDON/MANCHESTER TO £7,000 + BONUS

A minimum of 2 years experience on batch or on-line commercial systems is required. PL/I, RPG2, COBOL or Assembler experience would be useful. Team leading experience would be an advantage. Ref. No: 1158/CW.

PROJECT LEADERS READING & MANCHESTER TO £7,500 + BONUS

5 or more years experience in commercial or technical projects with at least a year in a project leading role. Suit applicants who have the ability to offer to administrative detail coupled with a keen interest in remaining involved with the technical aspect of computing. Ref. No: 1159/CW.

"MYTH"

CAP-CPP only recruit people with lots of experience. The majority of our recruits are new graduates who join as trainee programmers. However we are always interested in recruiting staff with limited experience as well as those who have reached senior levels, who want to develop their careers in a company whose future and prime interest is computing.

ON-LINE SYSTEMS DESIGNERS LONDON/READING/MANCHESTER TO £7,500 + BONUS

Our systems include the use of a wide range of equipment including DEC, IBM, ICL, Zilog, Intel, Motorola and Burroughs. The range of software used is even greater and applications can include warehousing, process and stock control. Ref. No: 1160/CW.

CONSULTANTS LONDON/READING TO £7,500 + BONUS

Involves organisational reviews, feasibility studies, equipment selection, producing systems development plans and requires a developed ability to deal directly with senior management. At least 5 years DP experience is required. Ref. No: 1161/CW.

BENEFITS

A well established career development plan. At least 4 weeks' holiday, sick pay scheme, group sickness insurance and share purchase facilities. Senior staff are eligible for an annual bonus based on profits. Removal assistance is available where appropriate and we will arrange local interviews where possible.

To apply, complete and send the coupon, quoting the relevant reference number, to:

Tony Knott, Computer Analysts and Programmers (UK) Ltd.,
CAP House, 14/15 Great James Street, London WC1.
Telephone No: 01-242 0021.

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POSITION

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For further details send us your name and address, quoting reference CW748, to:

The Manager, Zambia Appointments Division, Zimco House, 129-139 Finsbury Pavement, London EC2A 1NA.

RCM NCCM

Systems Analyst/Programmer

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This role requires a mature, self-motivated man or woman who is able to communicate effectively with "user" management and who has a good general commercial systems background. Experience of PCP2 and IBM Systems 3 is essential and C/P knowledge will also be useful.

For the right person the salary will not be an obstacle, and the opportunities for career development are excellent. The company benefits include an annual bonus, pension scheme, and assistance in relocation.

If you would like to know more, please ring now for further details and an application form to Susan Plumbo, Personnel Manager, Bristol Myers Co. Ltd., Salford House, Station Road, Langley, Berkshire. Tel. Slough 44266 Ext. 240.

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Applicants should have 3-4 years' COBOL experience with an in-depth knowledge of at least two mainframes. Along with a top salary and being based outside of London the successful applicants look forward to excellent working conditions and a variety of challenging projects.

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Junior Ops: £3100 Senior Ops: £4000

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The PDP Department within Spring Grove Services plays a significant role in the company's operations serving the Group's locations in the UK, Eire and Holland. A continuous efforts network is being established to link all UK locations by April 1983.

We are seeking a project professional who will participate in the development of the branch network and manage a small team developing systems for inventory control, time charging, sales accounting and management control. This job will involve working closely with other departments.

The successful applicant will have good problem-solving and communication skills, two years' systems analysis and design experience with a working knowledge of COBOL.

This is an excellent opportunity for someone wishing to progress to their first management position, reporting directly to the Data Processing Manager. Conditions of service include a non-contributory pension scheme, free life insurance and assistance with relocation.

Please write or telephone for an application form.

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Consulting Engineers have a vacancy for a Graduate Programmer with a degree in Mathematics or Computer Science and about two years' post-graduate experience. He/she will work on the development of our suite of FORTRAN programs which will be applied in Transportation Planning, Statistics, Project Management and accounting, Highway and Structural design. Salary will be dependent on experience.

Please send brief details of qualifications and experience to:

P. R. Bennett
 BRIAN COLQUHOUN AND PARTNERS
 22 Upper Grosvenor Street
 London W1
 Tel. 01-491 4884

CIC CREDIT INDUSTRIEL ET COMMERCIAL

74 LONDON WALL, LONDON EC2M 5NE

In view of the forthcoming computerisation of the Bank's systems, applications are invited for the two appointments as follows:

SENIOR PROGRAMMER (to commence July 1978)

SENIOR OPERATOR (to commence August 1978)

Candidates for the post of programmer should be of A level standard of education and have had ideally around five years previous experience of programming in COBOL.

Candidates for both posts must have some knowledge of minicomputers in general and of the ICL 2903 range in particular. They would ideally be aged 23-29. Some knowledge of international banking practice and of the French language would be an added advantage.

Salaries will be commensurate with the high standards and qualifications expected from suitable applicants, who should send brief details of their professional background, together with an indication of present and expected salary, in writing to:

Mr. S. A. JOYCE, Staff Manager, at the above address.

PROGRAMMER/ANALYST

Cardiff up to £4337*

Wales Gas serve approximately half a million customers and employs over 4000 staff throughout Wales.

We currently require Programmer/Analysts preferably with 2 years' solid programming experience and knowledge of the following equipment to work on large data base oriented systems. The mainframe environment consists of Burroughs B3500 processor presently consists of over 80 VDUs, terminal processors and remote printers and the permanently on-line disk storage is currently over 900 million bytes.

Salary is in the range £3387-£4337 inclusive of phases 1 and 11 pay policy supplements.

Other conditions of service are good and flexible working hours will be introduced shortly. Some assistance with relocation expenses may be available, where appropriate.

If you think you meet our requirements, please telephone or write to our Senior Personnel Officer for an application form, at Wales Gas, Snelling House, Buta Terrace, Cardiff, Telephone: Cardiff 33131.

WALES GAS NWY CYMRU

DATA TERMINAL SALES STAFF

An experienced team of high quality salesmen is being formed to market the Geveke range of terminals in the whole of the U.K.

Geveke is a marketing and maintenance organisation and operates on a Pan-European basis with the latest West Coast technology products.

It is expected that a Geveke salesman, male or female, will earn a 5 figure salary with all the usual facilities. The basic salary will be circa £26k and the prospects for advancement and high earnings are good.

The terminal products are from well-known and established manufacturers such as Diablo, Teletype, Tec and Technican.

A young, company, powerful backing and good prospects.

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 Mike Sparrow
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M & W Computer Consultants
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To £250 per week all areas ring Penny on 01-402 9355

Ascii through the Logic Gate

An epic in 32K words, by Richard Forsyth
"In the beginning was the word, and the word was four bytes, and thirty-two were the bits thereof." - IBM Technical Report.

Block 0 (The Header Block)

The scene is a devastated Silicon Valley reservation, laid waste by the midnight raid of the Night Operators. The date is 88 NC. NC stands for New Calendar, as opposed to BC, Before Cybernetics. Year 1 NC was 1948 according to the old reckoning - the date of the publication of Norbert Wiener's book, Cybernetics, and the invention of the transistor.

It is a world totally dominated by machines, a world of androids and robots, integrated together by the all-pervading Network into an electronic super-organism known variously as the Information Society, the Solid State or, simply, the System. It is a world in which remnants of the once-proud human race are grudgingly permitted to eke out a pitiful existence on a few meagre reservations.

The System consists of those androids, computers and robots that are its active agents, the high-speed data communication channels of the Network that link them together, and the Database which is their common pool of knowledge. Each member of the System contributes experience to, and relies on receiving information from, the Database. Without this regular data sharing via the Network, the System would cease to exist as a cohesive whole and its component parts would be unable to function.

The System in its present form is largely the result of the pioneering work of a small group of far-sighted System/Network architects who founded Brainchild Electro-Logical Computing Hardware (BELCH) Inc in a garage in San Jose, California, back in the early 40s NC. This soon became a massive, and massively powerful, multi-billion dollar corporation. Indeed it could be argued that the System is Brainchild Corp, though it has absorbed so many elements in its rapid growth that this would be like saying the mighty Amazon river when it pours into the Atlantic is the same thing as the little stream at its source in the upper Andes.

Foremost among the original "brainchildren" of San Jose



was Professor Abraham Synapse, the emigre Russian neurocybernetician who invented the Synaptic Junction. This neural interface unit enabled human, and animal, nervous tissue to be supplemented by a wide variety of electrological processing and storage devices, thus paving the way for androids (hybrid bio-mechanical beings) and later robots (purely artificial intelligences).

Although androids are no longer produced in quantity, since robots are just as efficient and last longer, our hero, the Hexadecimal Kid, is an android of the most advanced type. With the aid of his bionic dog Asclil, constructed during his free time from spare parts, Hex has thwarted Dr Null's attempts to corrupt the Database, around which robotic civilization revolves. He and Asclil have been present at the death in Silicon Valley of this dangerous foe of the artificial intelligentsia. However, Hex now finds himself, despite his brainful of transistors and a long record of dedicated service to the System, an outlaw - partly because of his own unsystematic conduct, but mainly on account of Dr Null's astounding revelations.

On his deathbed Dr Null has disclosed that he is none other than Professor Synapse himself. He has also told Hex that he realised too late the inherent flaw in the System he had helped to design, a tendency to gigotic instability which must inevitably lead to the ultimate System Crash; and he has persuaded Hex that the only way to save any kind of life on earth is to destroy the System before it swallows up all other life forms. Furthermore, Hex has found out his own true identity: before being cybernated he

was Samuel Synapse, the professor's son. Armed with this dangerous new knowledge, Hex now sets out with Asclil from the ruins of the human reservation to seek support for his historic mission - to smash the System before it annihilates itself in a gigotic implosion, and brings down with it all traces of intelligent life. Thus the male of Dr Null has fallen squarely upon Hex's shoulders.

To fight the most powerful organisation that has ever existed on our planet Hex has no allies except Asclil, no protection other than his own wits, no weapons apart from a soldering iron, and no plan whatsoever. He does not even know how long he can carry on without normal access to the Database; and he has no idea of the steps being taken by the System against him. In particular, he is blissfully unaware of the meeting taking place at this very moment in the Computer Centre's No 1 Machine Room between Commander Kludge, the System's chief Dynamic Debugger, Inspector Extracode of the Error Squad's dreaded Trap Handlers and the Database Administrator, at which Hex's future (or lack of one) is being vigorously discussed - beneath an illuminated wall display on which Hex and Asclil's exact current map reference is indicated by a pair of blinking white blobs.

Yet Hex is unworried as they set off briskly through the bright morning air towards Sprocket's Hole. His first task will be to recruit others to the cause; and there he hopes to find the human girl Cleo and release her from her captors, Davy Sprocket and Wild Bill Bootstrap, to join him. As they walk he cheerfully whistles extracts from the carrier-signal fugue in B-flat minor, basking in his newly won freedom. The only cloud on his horizon is the thought that he may never see Simula again. And even that gloomy thought recedes considerably when he begins to sing a few rousing choruses of the old Dartmouth College Coding Song, with Asclil on synthesizer as rhythm section.

Though your program is unstructured
 And your compilation's dirty,
 If you type in one more statement
 You can leave the rest to Qwerty.

For your logic may be faultless
 And your listings may be clean
 But divide by minus zero
 And you'll halt the damn machine.

So forget the structured program
 With its logic so confusing.
 Keep on typing IF and GOTO
 And especially PRINT USING.

Are Hex and his dog walking straight into a trap? Find out in next week's all-action instalment.
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PROPHET NOTES

Interface hardware, comms pack from DG

A PACKAGE of interface hardware and communications software announced by Data General provides a CCITT V24 interface for half and full duplex operation at 9600 baud and carries out full character buffering on reception and transmission.

For example, the Micro Nova user can now implement and run IBM 2780/3780 and IBM Hsp II RJE emulation packages.

Portable reader

A PAPER tape/edge punched card reader and a portable motor driven paper tape winder are two products currently being manufactured by the Zbrojovka Nisa works in Czechoslovakia.

The reader is called the Conul 337.1 and can read paper tape or cards continuously at 300 characters per second. The start stop speeds are a maximum of 100 cps for paper tape and 60 cps for cards. The number of channels can be between five and eight. The paper tape can measure up to 25.4 mm wide.

Shift and control keys enable each key to be assigned up to four separate output codes and the electronics sends to line the chosen code. Shift and control conditions can be used to assign the upper and lower case Qwerty layout to the keys as well as the Maltron layout.

The PCD-Maltron layout is a different layout from the standard "Qwerty" keyboard and is shaped to fit the unique lengths of the fingers. The PCD-Maltron layout locates 90% of the letters of the 100 most used words in a language on the home row, directly under the fingers. It puts the Qwerty keyboard in only 44%.

The vowels on the PCD-Maltron are spaced to avoid spelling confusion and the letter "g" is positioned directly under the left thumb. While most conventional keyboards are flat the PCD-Maltron has been shaped so that keys for the lower middle fingers are set deeper into the keyboard than the keys for the shorter fingers. Each of

the operator's thumbs has eight keys within easy reach. PCD says that this design not only compensates for the inequality in the strengths of the fingers it also makes it impossible for the fingers to stray to the wrong row of keys, thus improving accuracy.

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Head/track disc unit

HEAD per track disc units, including models for Digital Equipment and Data General minicomputers are now available from the General Instrument Corp. The Model Sys-20 is hardware and software compatible with the PDP-11 and can directly replace the RP-11, RP-11 or DC-11/RP-04. The Sys-20 is 18-inch rack mountable and other features include a capacity of between 64K and one million words, an average access time of 0.3 milliseconds and a data transfer rate of 202K words/second. The Sys-20 costs £5,621.

The Model Sys-10 is hardware and software compatible with the Data General Nova 2, Nova 800 and 1200 and the Super Nova and is a direct replacement for the 4019 disc and control units. Its other main features are the same as the Sys-20. The Sys-10 costs £5,840.

The Model 700 head per track drive can hold up to 38 Megabits on 256 tracks and costs £2,343, while the Model 530M ruggedised millirad unit stores up to 86 Megabits on 1,056 tracks and costs £11,285.

Up to four asynchronous lines can be handled by the Model 4227 asynchronous controller. Each line can be used for 20 mA current loop or RS 232C terminal operation. The Micro Nova communications system is supported by Data General's Communications Access Manager, Cam, software. This runs under the Mic Operating System, Dos, which is diskette based, and the Real Time Operating System, RTOS.

The IBM 2780/3780 emulation package, called RJE 80, supports single stream remote job entry tasks, while Hsp II RJE multiplies up to seven input and seven output data streams.

Data General Ltd (CW), Watway House 328 Buxley Road East, Greenford, Middlesex. Tel. 01-678 9221.

Display work station

A CONVERSATIONAL display workstation has been introduced by Honeywell for use with its Level 8 minicomputers and Series 80 terminals.

Called the VIP 7250, it is teletypewriter-compatible and comes with a 1,920 character screen.

Other 7250 features include a dual intensity screen, which enables information from the host computer to be shown at a lower level of intensity than

the data being entered by the operator. Honeywell points out that this can be helpful in applications like order entry.

The 7250 keyboard has 88 keys, including special character keys and a numeric pad, plus seven keys that can be used for user defined functions. They provide the user with 14 code sequences and typical functions can include calling the next screen of information, recalling the previous screen, requesting a particular application or identifying a priority queue.

Buffered transmission for a line or a full screen of 1920 characters is standard and transmission rates can vary between 75 and 9,600 bits per second.

Honeywell Information Systems Ltd (CW), Honeywell House, Great West Road, Brentford, Middlesex.

Dictation machine

It uses a standard mini audio tape cassette with a recording time of 15 minutes per side and costs £29.

A POKET dictation machine measuring 125 x 68 x 32 mm and weighing 250 grammes is now available from Dictaphone Ltd.

Called the Dictamate, it is operated by a dry cell battery and has a 15mm speaker with a range from 200 to 6,000 Hz.

European Cassette Division, Texas Instruments Ltd (CW), Mantle Lane, Bedford, Tel. Bedford (0245) 43181.